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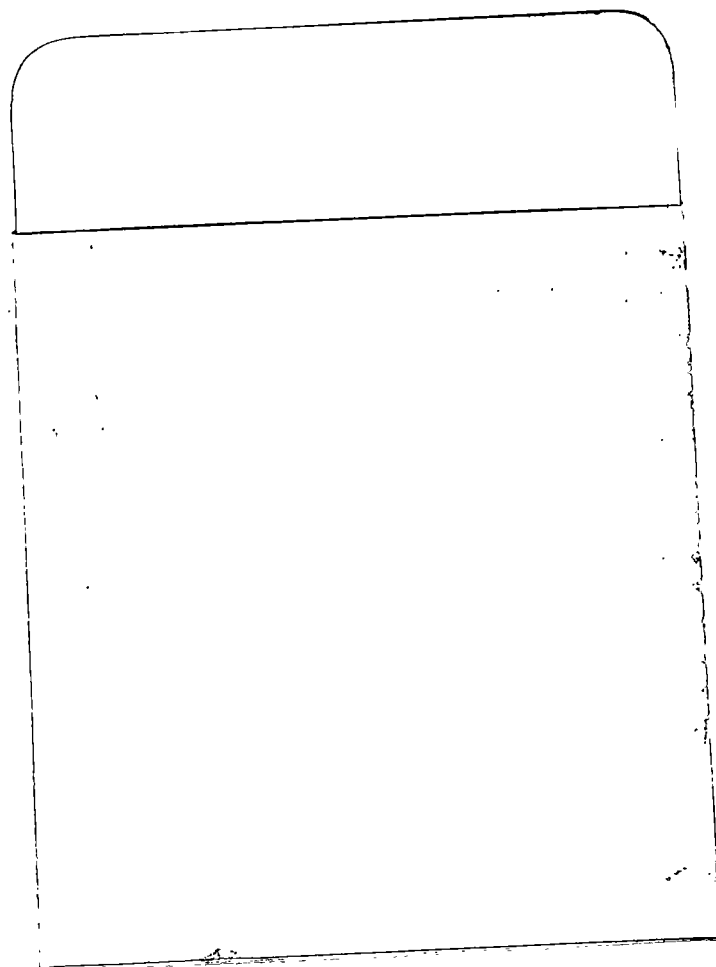
FM 100-10

HEADQUARTERS, DEPARTMENT OF THE ARMY

COMBAT SERVICE SUPPORT

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Field Manual
No. 100-10

*FM 100-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 18 February 1988

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*This manual supersedes FM 100-10, 1 March 1983

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PREFACE

The purpose of this manual is to depict the Army CSS organizations and describe how they support commanders at all echelons by manning, arming, fueling, fixing, and moving their forces. It will thus provide the basis for subordinate CSS doctrine, materiel, training, and organizational development.

The intended audience of the manual is threefold: combat and combat support commanders and staffs to provide a more universal understanding of how CSS is organized and provided; CSS commanders and staffs to institutionalize the integration of CSS into the total Army mission; and students to provide a broad knowledge of the CSS structure and of how it operates.

The goal of Army combat service support is to enable the maneuver commander to conduct combat operations. CSS doctrine is a major component of AirLand Battle doctrine as described in FM 100-5. FM 100-10 is the Army's keystone manual for combat service support of maneuver and combat support forces. It explains how Army CSS elements sustain forces in conducting campaigns, major operations, battles, and engagements. It serves as the basis for subordinate CSS doctrine, force design, materiel acquisition, professional education, and individual and unit training. It applies to Army forces worldwide, but must be adapted to the specific requirements of each theater. While emphasizing sustainment of conventional operations in a mid-intensity conflict, it recognizes that Army CSS forces must be capable of supporting operations in any battlefield environment, including low-intensity conflict, and on the nuclear and chemical battlefield. Likewise, Army CSS forces must be prepared to support other services and allies. These elements of joint and combined logistics doctrine are incorporated.

This manual uses the term *combat service support* to describe the various functions described individually herein. For purposes of this manual, combat service support is considered to include the full range of health services and personnel services functions as well as the traditional logistics functions of supply, maintenance, field services, and transportation. It includes those functions and services (whether provided by US Army, host nation, or contracted support) required to man, arm, fuel, fix, and move the Army in combat operations.

While this manual prescribes CSS doctrine for all organizations, its division-level focus is on the heavy divisions and their CSS structure. Details of CSS doctrine for all divisions are contained in 71-series field manuals and in 63-series field manuals which prescribe doctrine for echelon CSS headquarters units.

Users of this publication are encouraged to recommend changes which will improve its clarity and utility. Changes and comments should be forwarded to the Commander, US Army Logistics Center, ATCL-CLE, Fort Lee, Virginia, 23801-6000, using DA Form 2028 (Recommended Changes to Publications and Blank Forms).

Unless otherwise stated, whenever the masculine or feminine gender is used, both men and women are included.



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PART ONE

CONCEPT FOR SUSTAINMENT

Combat service support is an integral part of a fighting force. Knowledge of the principles of its provision and of the way it is organized is an essential item of the body of knowledge which successful leaders should possess. The role of combat service support as an integrated component of combat power deserves study so that its capabilities and limitations are known and considered in analysis and planning. This part of FM 100-10 describes the principles upon which the Army's CSS system operates and the ways in which the system is organized. It further describes the ways in which CSS elements support the major operational variations.

CHAPTER 1

Principles and Organization for Battle Support

The need for integration of effort in the US defense structure is greater than ever before. In any major war the US Army is likely to fight as part of a combined force. It will almost always fight as part of a joint force, and the Army will always fight as a combined arms team. Whatever force we field will be characterized by the integration of components into a unified team.

Sustainment is vital to success at both the operational and tactical levels of war, and it is a critical element of combat power on the AirLand Battlefield. At both the operational and tactical levels, the generation of combat power requires the conversion of the potential of forces, resources, and tactical opportunity into actual capability through violent and coordinated action concentrated at the decisive time and place. The ability to provide and sustain support for combat operations is predicated on thorough, integrated

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planning; therefore, there exists an inseparable relationship between operations/tactics and sustainment on the AirLand Battlefield.

THE MISSION

The overriding mission of US forces is to deter war. In support of this mission, Army forces must be able to meet worldwide strategic challenges against the full range of threats in low- to high-intensity operations. The nature of modern battle and the broad geographical range of US interests make it imperative that Army units be prepared to participate in both joint and combined operations anywhere in the world. The capability to sustain our Army in those operations is crucial to their contribution to deterrence.

The AirLand Battlefield will be a demanding environment. The field commander will be hard pressed to meet its many demands. His challenge is to fight, often outnumbered, in an extremely hostile en-

vironment and win. The basic mission of combat service support is to sustain the battle. The CSS system's sole purpose is to maintain and support our soldiers and their weapon systems in operations on the AirLand Battlefield. CSS planning must focus on sustaining the maneuver force as it executes the commander's intent while conducting deep, rear, and close operations.

The sole measurement of successful sustainment has always been the generation of combat power at the decisive time and place. The mission of CSS is to facilitate the commander's ability to so generate combat power. CSS must allow the commander to achieve the tenets of AirLand Battle.

THE SUPPORTED

The maneuver units and their combat support are the major focus of CSS operations. In the frontline combat battalion task force area, there are many functions being performed by combat support units—division and corps artillery (the major tonnage consumers), division and corps engineers, military intelligence units, and signal teams. There are more combat support units in the brigade area; for example, air defense, FARPs for division and corps helicopters (another large-tonnage consumer), and engineers. There may be still more maneuver and combat support formations in the division rear area. In the corps rear area, reserve divisions and brigades, air defense, aviation, command and control, and CSS organizations themselves will require CSS.

All organizations require food, clothing, water, and the other essentials for human

sustainment. Most require ammunition and fuel. Most require maintenance support outside their own capabilities. All require medical and personnel service support.

When fighting as part of a joint force and in many places as part of a combined force, Army organizations will frequently support other services or allied forces. This support may range from POL distribution to US Air Force bases to emergency distribution of ammunition to allied artillery units.

Figures 1-1 through 1-3 illustrate the magnitude of the sustainment mission by portraying typical troop populations in various areas of the battlefield. These figures illustrate the magnitude of the CSS-consuming force forward of the division rear boundary. In the corps rear and in the COMMZ, the numbers of consumers are even greater.

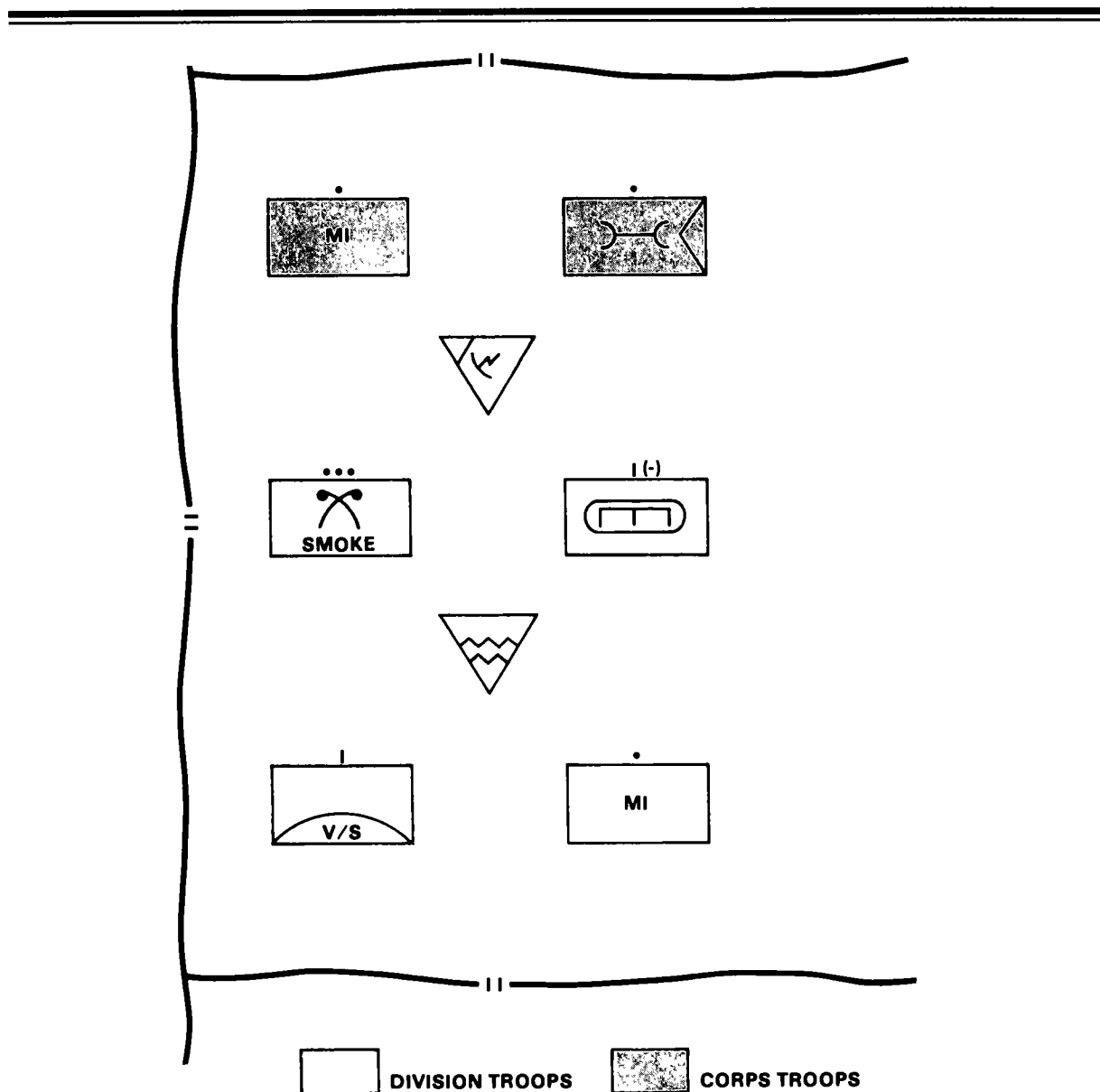


Figure 1-1. Nonbattalion Units Requiring Combat Service Support

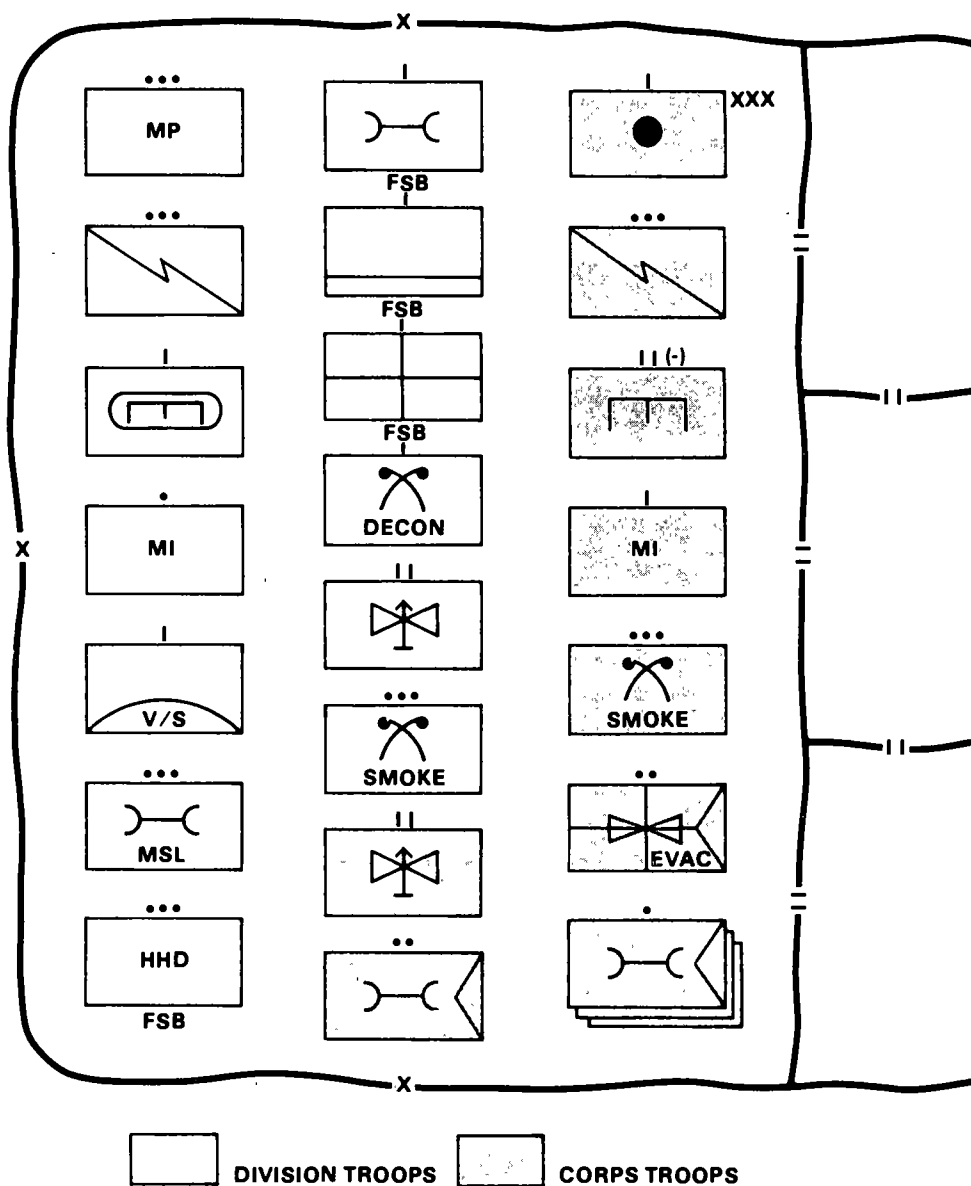
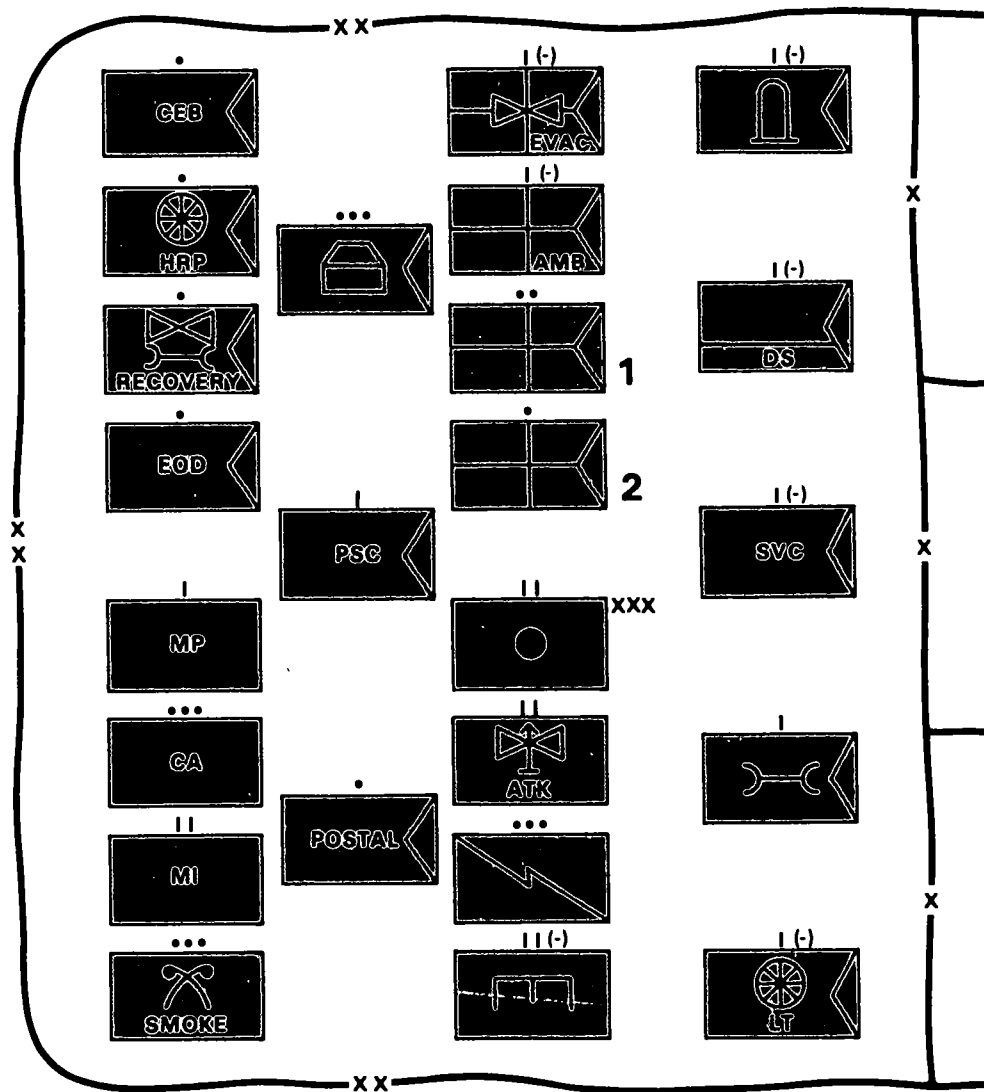


Figure 1-2. Nonbrigade Units Requiring Combat Service Support



1 Includes combat stress control sections.

2 Includes treatment, surgical, and combat stress control squads.



CORPS TROOPS

Figure 1-3. Nondivision Units Requiring Combat Service Support

THE ENVIRONMENT

It is useful at this point to elaborate briefly on the environment of the AirLand Battlefield. Nonlinear operations and unprecedented demand for resources are its most salient features. In this section, we will also introduce the implications of chemical and nuclear operations and the special requirements in low-intensity conflict.

To operate on this fluid AirLand Battlefield, forces must possess a higher degree of self-sustainability than ever before. They must be sustained by a support structure with mobility and speed which approaches their own. Units operating in brigade, division, and corps rear areas must be capable of great flexibility in supporting maneuver forces which will be constantly changing direction and tactics, moving from attack to defense and back in order to seize and exploit opportunities. CSS organizations may task-organize as frequently as the units they support in order to bring to the field a sustainment effort geared to the essential needs of the maneuver force.

Units located in rear areas will likely be subjected to enemy action as never before. They will not always be separated from hostile forces by belts of friendly forces in the covering force and at the FLOT. They must always be prepared to fight to protect themselves and the critical services and materiel they provide. The division and corps rear areas and perhaps the COMMZ may be the scene of major engagements if large forces penetrate friendly defenses. These penetrations can be air or waterborne in addition to possible ground penetrations. Units with habitual relationships may become separated from each other. Units located in rear areas must be prepared to meet the twin challenges of providing support and surviving on this nonlinear battlefield.

THE BATTLEFIELD

Soldiers and their weapon systems create major demands for combat service support in this environment. High casualty rates will require an efficient personnel management system and extraordinary support by mobile health care organizations to save lives and preserve fighting strength. Likewise, the demand for trained replacements will be constant. Weapon systems will use a variety of enhanced lethality munitions to better influence the battle. Traditional methods of ammunition resupply will not be responsive enough to supply the variety and quantities of munitions needed at the time and place for decisive action. We must move all types of conventional munitions to the brigade support areas for transfer to the maneuver, aviation, artillery, and engineer units. Scarce, enhanced lethality munitions can frequently be moved there by air.

Fuel consumption will be dramatically higher than it has ever been. A modern US heavy division may well consume more fuel than a World War II corps. The task of fueling will be more difficult than ever before not just because of the high consumption but also because mobile, fast-moving combat dictates that fuels, like munitions, must be delivered forward to the maneuver and combat support battalions.

Class IV and V barrier materials become critical as maneuver forces seek to impede enemy movement and to make the enemy move to positions favorable to us. CSS organizations must package and deliver them to the sites required with responsiveness seldom needed heretofore.

All units must bring well-maintained, combat-ready weapon systems and equipment to the battle. To keep systems availability high, maintainers will repair disabled and battle-damaged equipment using battle

damage assessment and repair techniques and component replacement as near to the user as possible and evacuate equipment that cannot be fixed on site. Suppliers must ensure that the right components for those repairs are provided at the right place and time. Together, their goal is to maintain the fighting strength of the equipment component of the weapon systems.

Transportation is the glue which binds the personnel and equipment distribution systems together—whether munitions, fuel, repair parts, or equipment replacements. History shows that transportation is a traditional limiting factor on armies. The lethal, nonlinear battlefield will demand more flexible control of transport assets so as to respond to changing support requirements. Likewise, transportation's role in managing road nets has become critical to facilitating maneuver and movement of forces as well as supplies.

The integration of all these tasks at the lowest level is weapon system replenishment. Fuel and ammunition are replenished; maintenance is accomplished rapidly; wounded crewmen are treated; water and food are provided; and replacements are effectively fitted into the team or crew.

THE AIR DIMENSION

In order to move critical sustainment resources quickly to the point of need, air—both Army and Air Force—must increasingly be used as a method of transportation for personnel, supplies, and equipment. In many instances air will be the only route to supported maneuver forces. It will be relied on as never before to evacuate wounded soldiers to medical facilities so that they may be eventually returned to the battle.

COMMAND AND CONTROL

Command and control will present great challenges to leaders at all levels. The nature of the battlefield will provide the greatest obstacles to directing the activities of maneuver and sustainment forces. The fluidity of battle will demand constant changes to both combat and sustainment plans and operations. The dispersion required will lengthen distances over which communications must flow. Interruptions in communications will demand that all leaders develop the ability to act on their own in carrying out the commander's intent.

CSS leaders must develop and practice innovative techniques to convey information and orders. Decentralized execution of tasks must be the practice; for example, placing transportation truck units in direct support of ammunition resupply from GS and DS ammunition facilities in the corps. The Army CSS command and control systems must be integrated into the joint and combined support systems, especially in the COMMZ, to facilitate the management of common-use resources.

CHEMICAL WARFARE

The potential for chemical use on the AirLand Battlefield poses a great challenge to the support infrastructure. First, logistics activities provide lucrative targets with their stockpiles of critical supplies and important component repair activities that can be denied to the force without being destroyed. Second, the constraints that chemical warfare impose on logisticians are considerable. At worst, chemical munitions would bring sustainment to a halt; at best, they could severely curtail it.

Contaminated equipment must either be repaired as is or decontaminated and then repaired. Fixing contaminated equipment is

slow and laborious because the repairer must work in protective gear. Decontamination is equally slow. Soldiers in MOPP gear will exhibit increased stress, early fatigue, and marked performance degradation. Even the threat of chemical use will have psychological effects on soldiers adding to the stress casualty work load of medical units and the demands placed on replacement systems and chaplain services.

NUCLEAR WARFARE

The specter of nuclear warfare will continue to shadow the battlefield. Tactical employment of nuclear weapons will magnify the destructive character of operations on the AirLand Battlefield. The exposure of all forces to nuclear fires and their associated hazards will require unprecedented reconstitution efforts in returning heavily damaged and attrited units to the battle.

Sustainment efforts will be hampered by the effects of nuclear weapons. Supply lines could be blocked by tree blowdown miles from ground zero. Terrain, equipment, and personnel otherwise unscathed by blast, heat, and light may encounter radiological contamination. The electromagnetic pulse effect might make CSS communications more difficult at just the time they are needed most. Medical resources might be overwhelmed.

UNCONVENTIONAL WARFARE AND TERRORISM

Units, sustainment facilities, and installations can suffer catastrophic damage at the hands of even clumsy, untrained terrorists, let alone highly trained, skilled unconventional warfare forces. Critical commodities and facilities can be destroyed or rendered useless at low cost to the enemy. Security of

materiel and facilities is a large part of protecting the entire force and is critical to the sustainment effort.

LOW-INTENSITY CONFLICT

Low-intensity conflict presents many unique sustainment challenges not faced in mid- and high-intensity conflicts. High on the list of sustainment challenges is CSS readiness. Some LIC operations are ongoing. The CSS structure is in place and operates routinely. Others will be characterized by short-notice, hastily executed deployments into bare base environments. The key to successful sustainment in these operations will be readiness. CSS teams and units will be faced with the requirement to support an Army, a joint force, or even a combined contingent on little notice.

CSS will be provided by an element tailored to the mission. Leaders and all members of the element must be innovative and aggressive in seeking solutions to problems. They must be flexible in dealing with unforeseen problems. They will rely on available civilian resources in order to reduce requirements on transportation and other Army or other service resources. They will be capable of dealing with the indigenous population in finding and securing goods and services.

COMBAT SERVICE SUPPORT TASKS

The foregoing description of the AirLand Battlefield sustainment environment points out many of the CSS tasks. Following is a more precise description of those tasks in the terms used in the remainder of this manual. The CSS tasks, like the CSS mission, are

simply expressed and challenging to achieve. They are to *man, arm, fuel, fix, and move the supported force and to protect the sustainment force.*

Manning includes the support provided to the individual soldier as well as the provision of healthy, fit soldiers to units. Manning support includes rations, clothing, and individual equipment. The soldier must also be provided the essential field services such as clothing exchange and bath. All soldiers will be provided the full range of CSS services to include chaplain, finance, and legal support.

Arming is the provision of munitions to the weapon systems. It encompasses all types of ammunition to include mines and demolition munitions.

Fueling is the provision of required fuels to weapon systems and other equipment. In modern battle, fuel is as important as ammunition.

Fixing transcends maintenance. Its purpose is to preserve the availability of weapon systems and equipment. It includes the

provision of repair parts at the right place and time and all the actions taken before, during, and after battle to keep equipment operational. Maintenance battle damage repair and the other fixing tasks are combat multipliers because they make up for smaller numbers of equipment items.

Moving consists not only of the actual transportation of people and materiel from one place to another but also of the management function which seeks to use resources, including road networks, most efficiently and to greatest effect. It includes terminal transfer operations and highway regulation.

Protecting includes those actions taken by commanders and staffs to defend their sustainment system.

Manning, arming, fueling, fixing, and moving are the basic tasks of CSS. Each in itself is a difficult task, the integration of all five into comprehensive, integrated battle support is the major challenge of the CSS leader. Each of these tasks is discussed in detail in subsequent chapters of this manual.

THE SUSTAINMENT IMPERATIVES

The tenets of AirLand Battle doctrine—*initiative, agility, depth, and synchronization*—are basic to operational and tactical success on the battlefield and establish the framework for arranging sustainment. Sustainment must be carried out so as to facilitate the ability of the maneuver commander to attain those tenets. CSS doctrine then seeks to overcome the natural inhibiting effects of the logistics “tail” and enable the maneuver commander to take advantage of

opportunities to achieve tactical or operational advantage.

Sustainment components of the force must support the overall aims and plans of the commander. Their function on the battlefield is to enhance the commander's chance for success and to make his plan work with an aggressive determination even in the presence of the unforeseen difficulties that are characteristic of war.

Sustaining the battle will require commanders and staffs to adhere to what are termed the sustainment imperatives. These are *anticipation, integration, continuity, responsiveness, and improvisation*. They are discussed in detail in FM 100-5.

CSS leaders and staffs must *anticipate* future events and requirements by understanding the commander's plan and by foreseeing events as operations develop. While continuing to support current operations, they plan for future operations, and they attempt to foresee unexpected changes in the course of the battle. For example, the corps CSS leaders must focus on the period at least 48 to 72 hours in the future. They can do little to affect sustainment in earlier time periods. They also anticipate events by ensuring that the CSS structure constantly retains the flexibility to respond quickly to change.

CSS is an integral part of a fighting force at all echelons. *Integration* of sustainment operations with the operations of the maneuver force is crucial. Support forces must be organized to give the commander the greatest possible freedom of action. They must fit into the total force and the overall plan. They combine with the maneuver and combat support elements of the command to ensure unity of effort.

Continuity of sustainment is paramount to the continued success of the force. Pauses for rebuilding impede momentum and rob the commander of the initiative. Continuity implies the responsibility to ensure that an operation is not affected by a lapse in support or by unforeseen events. Continuity of support lends depth to the commander's operations and contributes to his retention of momentum and the initiative.

Responsiveness is the ability to meet changing requirements on short notice. AirLand Battle doctrine relies on the ability of the combat force to seize fleeting opportunities. Sustainment elements of the command must be as opportunistic as the maneuver elements. Sustainment planners and commanders must respond to the situation quickly so that momentum is retained. Support must be responsive to changes. Bold and innovative methods of support will be required.

Improvisation must be a hallmark of CSS. Supporters must seek new, innovative solutions to problems. The routine and the traditional must be discarded if they will not solve a problem. Extraordinary methods may be necessary to get things done.

CONCEPT FOR SUSTAINMENT

The AirLand Battle tenets of FM 100-5 and the sustainment imperatives previously discussed point out clear concepts by which CSS must be provided.

SUPPORT THE COMMANDER'S INTENT

Combat, combat support, and CSS elements of a command must focus their efforts on what the commander intends to achieve. To do this, they must all act in concert and all must understand his intent. The commander's intent is not always a constant purpose; it may change as the situation develops, particularly at the lower echelons. Leaders in all elements of the command develop a feel for changes and prepare to execute and support them.

SUPPORT FORWARD

Sustainment forces must be arrayed to—

- Move supplies, replacements, and weapon systems as far forward as possible, normally to the field trains in the brigade support area.
- Evacuate wounded soldiers and not easily reparable equipment from as far forward as possible, usually combat trains.

The guiding principle is that the combat force should keep its own scarce CSS resources (trucks, recovery equipment, ambulances) to support its companies/batteries and be ready to move quickly if the battle dictates. They should not have to use organic assets to move to the rear (that is, division support area) to pick up supplies nor to move back resources that can no longer contribute to combat power. That is the task of CSS organizations. The next chapter will elaborate on how the concept is put into practice in CSS organizations.

RELIANCE ON SUSTAINMENT FROM OTHER SOURCES

We will conserve Army resources by placing reliance on any other viable sources of support in preference to using Army units. The most visible of these is host nation support. Others are the logistics civil augmentation program, DA and DOD civilians, and captured enemy material. Such support is discussed in more detail later in this chapter.

LEADERSHIP

Last, but perhaps most important, the challenges to sustaining battle are met through leadership. Effective sustainment can be carried out only through superior leadership and professionalism in the ranks of the combat service support structure.

The CSS practitioner is a full partner of the tactician. He is trained with the same care and serious intent. He is well versed in the tactics of battle. He is tutored by his seniors in the methods and procedures of support. He seeks to understand the whys and wherefores of tactics and conveys the basics of support to his tactical peers and seniors. He is trained to respond to mission orders, both stated and implied. He understands the tactician's art because he must support its practice.

He is imbued with a broad understanding of the military art to completely understand his own support functions within the framework of the Army's operations. While he may serve as a specialist in various assignments, his training should make him a generalist in the military art. Command is the CSS leader's most cherished assignment, and CSS command requires a multidisciplined officer well schooled in military doctrine, procedures, and philosophy.

CSS warrant officers and noncommissioned officers are trained to execute the responsibilities of specialists and leaders. The growing sophistication of equipment, management techniques, and overall technology requires specialists and technicians, but CSS WOs and NCOs must be leaders first. They must know and practice soldiering and leadership. The technician and the leader must be combined.

ORGANIZATION FOR SUSTAINMENT

The organization and location of CSS elements on the battlefield are determined by the tasks performed, the echelons they support, and the areas in which they support.

ORGANIZATION BY TASK

First, CSS units are organized according to the task they are expected to perform. This is TOE organization. For example, a maintenance company is organized (provided the proper MOS skills, tools, and equipment) to fix the equipment of the units it will habitually support. Thus, a division maintenance company is organized to perform the task of keeping division equipment in the battle. It has the personnel skills, tools, equipment, and components required to maintain the equipment of division units it habitually supports.

While there are requirements for such fixed standard CSS units, there is also a requirement for flexible CSS units. Using the same maintenance example, a nondivision maintenance company will be organized with a base maintenance capability and with specialized maintenance support teams

designed to work on specific combat equipment such as engineer, artillery, aircraft, and IEW equipment. These combat weapon system teams are assigned to the maintenance company as required.

Organization by task is not limited to TOE design. Informal, ad hoc task organization is frequently employed. It is simply the temporary grouping of CSS assets to support a combat or combat support formation performing a specific mission. Organization by task is depicted in Figure 1-4.

ORGANIZATION BY ECHELON

Support is also organized by echelon of support. The combat support and maneuver battalions have small support organizations that provide minimal essential services (critical supplies such as fuel and ammunition, transportation, food service, personnel and

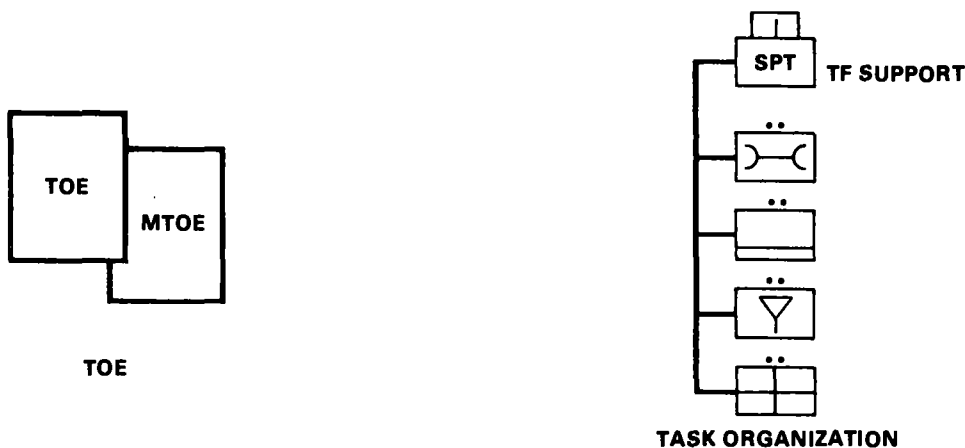


Figure 1-4. Organization By Task

administrative service, and emergency medical service). The brigade is supported by the next echelon, which is the DISCOM forward support battalion that generally operates in the brigade support area. At the next echelon, the DISCOM supports the division as a whole; similarly the COSCOM supports the corps.

Our approach to sustainment is based on the premise that maneuver and combat support elements should have an organic sustainment capability commensurate with their missions. The company/battery fights engagements of short duration and so is provided with only the rudiments of a sustainment organization. The battalion fights or supports engagements of slightly longer duration and is provided a slightly greater

sustainment organization (supply, maintenance, personnel, and medical). The brigade does not have an organic sustainment capability. It is supported by elements of the DISCOM—forward support battalions or separate maintenance, medical, and supply companies—that generally can support the brigade indefinitely as long as the flow of supplies and replacements from the rear continues and evacuation routes to the rear remain open. Division and nondivision corps units are supported by the COSCOM. The TAACOM and other theater-level CSS organizations support all units in the COMMZ.

Figure 1-5 depicts sustainment organization by echelon from corps forward.

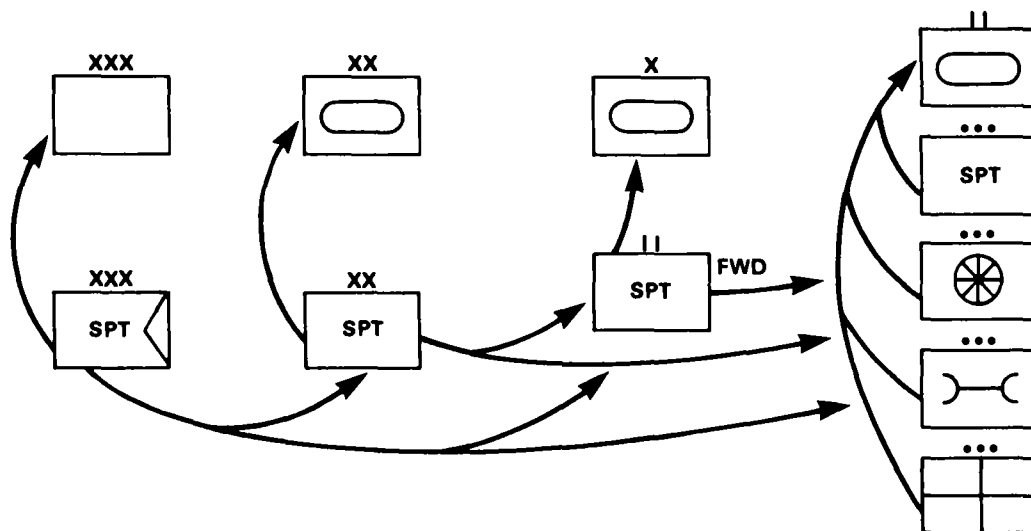


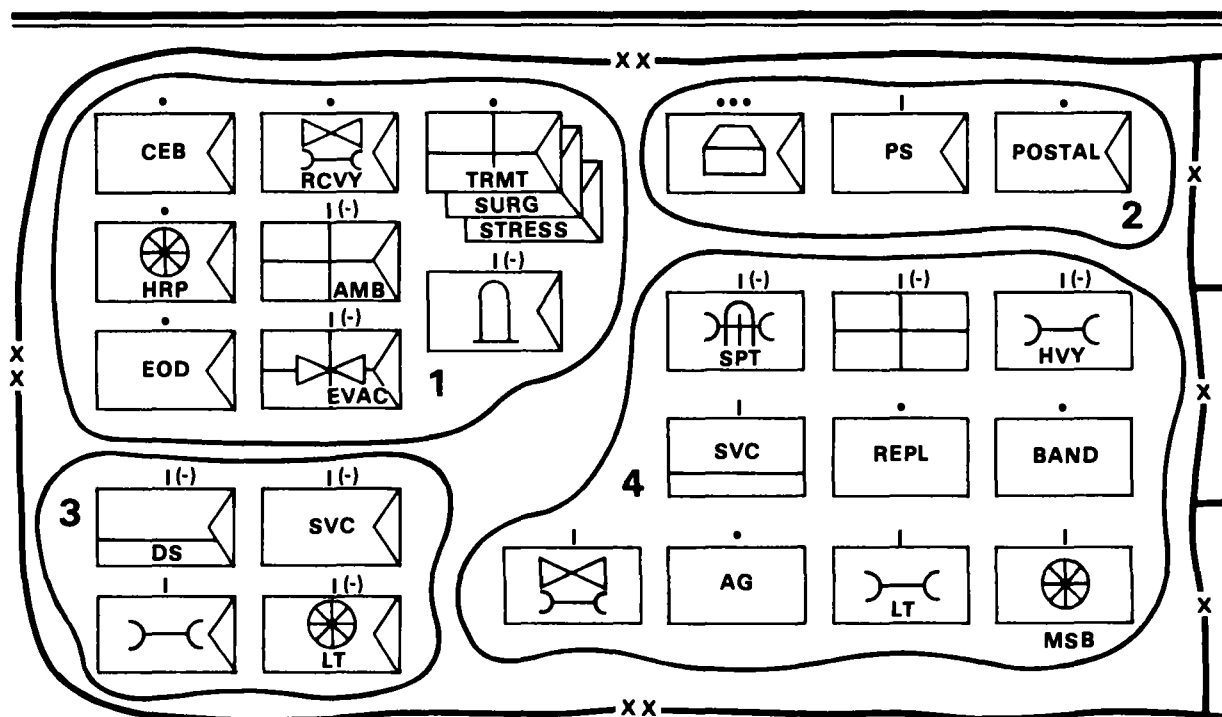
Figure 1-5. Organization By Echelon

ORGANIZATION BY AREA

Last, CSS is organized by area. CSS is provided to the company in the company trains area, to the battalion in the combat and field trains areas, and to other units in the brigade support area. At higher levels, CSS is provided to division and nondivision units in the division support area and to units in the corps and theater rear areas by geographical area. For example, a nondi-

vision maintenance company in the corps or theater rear area supports all units in its given area of responsibility.

Three organizations—corps, COSCOM, and division—provide combat service support in the division rear area. Figure 1-6 depicts an example of sustainment organization by area in the division rear.



- 1 COSCOM units that provide support to division and corps units. NOTE: While the goal is for ATPs to provide 100 percent of division ammunition requirements, ASPs will be "surge tanks" holding part of the corps reserve and will also issue to support units and organizations in reserve.
- 2 Corps CSS units that provide support to division and corps units.
- 3 COSCOM units that provide support to corps units operating in division area.
- 4 Division CSS units that provide support to division units. NOTE: Medical company provides support to either division or corps units on an area basis.

Figure 1-6. Organization by Area

THE SUSTAINMENT SYSTEM

The Army's system for providing combat service support is based on the requirements of the force and affordability. Overhead and unnecessary redundancy are reduced where possible. The CSS system is based on providing adequate support to forces anywhere in the world. The support base for all theaters is the continental United States. Great dependence is placed on the transportation system, both surface and air. Deployed forces are sustained over long lines of communication. Because of the possibility of interruptions in materiel delivery, we routinely build varying levels of stocks to overcome any such interruptions.

Our initial go-to-war supply system in an undeveloped theater is a push system. Packages of required supplies are sent to the theater to replenish expended supplies. As the supply system stabilizes, the overall system becomes a pull system, although at battalion and brigade level supplies continue to be pushed to the user. The pull system is the normal process for a developed theater with pre-positioned war reserve stocks and is used from the beginning of hostilities. The general flow of requisitions and supplies is depicted in Figure 1-7. It should be noted that Class VII supplies follow the same requisition and supply flow. However, weapon

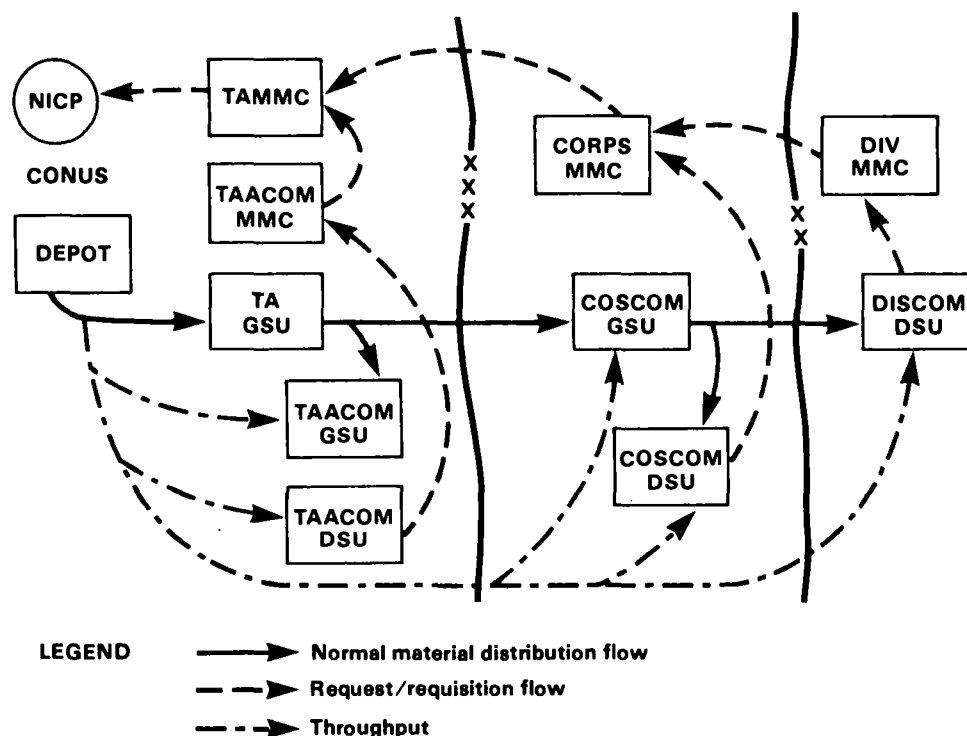


Figure 1-7. General Requisition and Supply Flow (Except Class V)

systems such as tanks and helicopters so critical to battle success are intensively managed and are normally command-controlled.

COMPANY/BATTERY ECHELON

Ultimately, the most important sustainment is self-sustainment—that provided by soldiers. It includes “buddy-aid” for fellow soldiers, crew preventive maintenance and care of equipment and their own health, as well as maintenance of basic loads of supplies.

Preconfigured supply packages or LOGPACs are “supplied” by the battalion support platoon forward to maneuver companies. A LOGPAC is used to simplify resupply by assembling all resupply vehicles in the field trains and sending them forward to resupply the companies.

A LOGPAC may include replacements and/or returned-to-duty soldiers, supplies, and repair parts. Cargo trucks, fuel tankers, and ammunition trucks transport LOGPACs. Issue procedures in the company area are tailored to the situation.

CSS other than supplies is also provided. Aidmen from the battalion medical platoon habitually operate with the companies so that basic life-saving skills are constantly at hand and rapid evacuation to the battalion aid station can be effected. A maintenance team from the battalion maintenance platoon normally operates with the company to fix forward and to assist the company in recovering inoperable equipment to the UMCP

The same principle is employed by artillery, engineer, and other combat support units in the brigade area although resupply is apt to be more frequent (for example, artillery

units need continuous ammunition resupply to support firing rates of up to 300 rounds per tube per day). LOGPACs for combat support units operating in a maneuver force area should be coordinated with and integrated into the maneuver force resupply schedule when possible.

BATTALION ECHELON

The preferred method of supporting the battalion is through echeloned trains. Battalion trains are normally made up of battalion CSS assets and elements of the forward support battalion. The area occupied by the battalion combat trains is generally located between the brigade support area and the company resupply points 10 to 12 kilometers from the FLOT.

The battalion combat trains are supervised by a combat trains CP in which are located the S1 and the S4. The CSS resources which are immediately needed by the maneuver companies are located there. These resources normally include the battalion aid station, medical evacuation vehicles from the FSB medical company, elements of the battalion maintenance platoon (MTs augmented by MSTs from the FSB maintenance company) under the battalion maintenance officer, and elements of the battalion support platoon which carry uploaded supplies, mainly fuel and ammunition. The maintenance elements normally operate separately from the combat trains in a nearby UMCP. The combat trains provide the immediate support for the maneuver companies. The S1 and S4 continually coordinate with the companies to determine CSS status and with the field trains to ensure that required supplies and replacements will be obtained.

The battalion field trains are normally located in the brigade support area where

they serve as a link between the FSB and the combat trains. The field trains are supervised by the HHC commander. Field trains elements normally include the PAC, the maintenance platoon (-), and the support platoon (-).

The CSS system in nonmaneuver battalions operates similarly. For example, division and nondivision DS field artillery batteries, which frequently operate in maneuver battalion and brigade areas, are supported by their service batteries, which are organized much like the support elements of the maneuver battalions. Division and nondivision engineer battalions are also organized for support along these lines.

BRIGADE ECHELON

Divisional maneuver brigades have no organic CSS assets. An FSB from the DISCOM provides dedicated CSS to each maneuver brigade and its supporting DS artillery battalion and to other units in the brigade area within its capability.

The brigade support area is generally located on an MSR near the brigade rear boundary. Selected COSCOM units may also be located in the BSA to support nondivision units operating in the brigade area (GS artillery, DS/GS engineer, DS/GS MI, attack helicopter) as required.

The FSB supply company provides supply support in the brigade area. At its supply points, it receives ammunition, POL, rations, and bulk Class IV delivered by corps transport (normally truck and air, possibly rail) from corps GS or DS supply companies. It receives other supplies and equipment from the main support battalion in the division rear. The FSB supply company, when augmented, provides graves registration, clothing exchange and bath, and decontamination support.

The FSB maintenance company, which consists of a base shop and mobile maintenance support teams, provides maintenance support in the brigade area. Some of the mobile MSTs operate forward in battalion combat trains or with DS artillery battalion maintenance platoons. The company repairs recovered equipment, arranges evacuation of major systems (like artillery) to its location or to the DSA, and operates the repair parts supply system for supported battalions.

Health service support in the brigade area is provided by the medical company. Its ambulances evacuate patients from battalion aid stations to its treatment platoon.

DIVISION ECHELON

The DISCOM provides division-level logistics and medical support to all organic and attached elements of the division.

The division support area is that portion of the division rear occupied by the DISCOM command post and organic and attached units. This area may also contain combat support units (for example, signal, MP, helicopter, engineer) and COSCOM elements operating in support of division and non-division combat support and combat service support units. The DSA is normally located in the division rear adjacent to air-landing facilities and main supply routes. The precise location is contingent on tactical plans and the factors of METT-T.

The DISCOM support operations section and MMC provide planning and coordination to ensure sustainment support for all division and attached units and manage reconstitution of units.

The MSB S&S company provides supply support for units in the division rear area and

manages the division's reserve supplies (Classes I, II, III, and IV) to back up the FSB forward supply companies. The S&S company of the MSB also provides clothing exchange and bath and graves registration services when augmented. Salvage collection is also provided by the S&S company.

MSB maintenance units perform division-wide maintenance tasks. The light maintenance company repairs communications equipment and electronic components and maintains the main ASL repair parts. The heavy maintenance company supports the division troop units from a base shop in the DSA and with MSTs which work in the areas of supported units. The missile maintenance company provides reparable exchange and repair parts supply support (for missiles such as TOW and Dragon) for the FSB maintenance companies. It also provides backup support to the FSB maintenance companies and repairs all other division missile systems not organic to the brigades.

The aircraft maintenance company, a separate company within the DISCOM, provides aviation intermediate maintenance support for the division aviation brigade aircraft, aircraft armament, avionics, and aircraft-peculiar items of ground support equipment. The AMCO also provides aircraft repair parts (Class IXA), aircraft end item support (Class VII), and backup aviation unit support.

The motor transport company of the MSB provides transportation for personnel, supplies, and equipment to support division personnel and logistics support operations. It also supplements corps transport in delivering supplies from corps GS/DS sources during surge periods.

The medical company in the DSA provides unit-level medical support to units in

the division rear and augments forward medical companies or battalion aid stations as well as providing division-level medical support to both division and nondivision units in the division rear area.

The AG element, which is organic to the division headquarters, controls personnel replacement flow and coordinates other PSS for the division. Finance support units, under the command and control of a corps finance group, provide finance services to the division. A PSC, under command of the corps personnel group, provides other personnel services to the division.

The COSCOM will also position DS units in the DSA to hold part of the corps reserve stocks (such as ammunition in ASPs and major components and repair parts) and to support nondivision units operating in the brigade and division areas. Close coordination will be established with the DISCOM.

CORPS ECHELON

The COSCOM provides support to all corps forces and, when directed, to forces of other services or countries. Corps CSS units operate as far forward as necessary to support the tactical plan, supporting units in their assigned area.

The COSCOM headquarters, with its materiel management and movement control centers, is normally located in the corps rear area. The corps headquarters and COSCOM headquarters should be within reasonable surface travel distance of each other because of their close relationship.

Corps support groups provide the command and control of the COSCOM's logistics units with one corps support group normally supporting each committed division and one supporting the corps rear. Each CSG will

have a mix of GS and DS resources, the latter to support forward nondivision organizations and provide backup to the division units. Each CSG includes supply, service, and IDSM units.

Under control of the MCC, corps transportation units move ammunition, replacement equipment, and other supplies from GS units to COSCOM and division DSUs. They also move personnel to where they are needed.

Medical brigade treatment facilities treat patients evacuated to them, holding them if they can return to duty within the time specified by evacuation policy or evacuating them to COMMZ hospitals if recovery will take longer. They also provide unit-level support in their assigned areas.

Corps units provide personnel and administrative services, finance support, aviation CSS, and CMO support in the corps rear area. The COSCOM provides supply services, maintenance, transportation, and health services in the corps rear area.

THEATER ARMY ECHELON

In a single or multicorps theater, a theater army headquarters provides overall management of CSS operations. It establishes priorities, assigns missions, and allocates resources in accordance with the TA commander's concept of operations. It uses an MMC to manage supply and maintenance and a movement control agency to provide theater-army-level movement management services. It has a theater army personnel operations center at the PERSCOM to assist in the control and operation of theater-army-wide personnel support and a theater finance group which provides theater-level finance support. It also directly controls special

weapons storage and distribution through a special ammunition brigade.

The theater army commander may establish one or more TAACOMs in the COMMZ to provide—

- Supply support to the corps for all supplies except those supplied to the corps direct from CONUS by DSS ALOC.
- Intermediate (GS) maintenance of components and overhaul of major items for return to the supply system.
- Backup intermediate (DS) maintenance support to the corps.
- Logistics and personnel service support to Army units located in or passing through the COMMZ to include reception, staging, and reconstitution.

The number of TAACOMs assigned to a theater depends on the size of the theater expressed in terms of the force in the theater, the work load, and the geographical area.

The TAACOM, through its area support groups, provides DS-level logistics support, less movement control and line-haul transportation, to units located in or passing through its assigned area. Not least among these are reinforcing combat and combat support units which arrive in theater—personnel by air and equipment by sea—for deployment forward. The TAACOM, through its area support groups, provides support to such units from arrival through personnel-equipment linkup to entry into their eventual area of operations. Support is also provided to formations which are undergoing extensive reconstitution. ASGs also support the corps with specified logistics support and the overall theater supply system through the repair or overhaul of components and major

end items as directed by the theater army MMC. A TAACOM finance group provides finance services through a network of FSUs. A TAACOM personnel group provides personnel services through a network of PSCs and other P&A elements. The TAACOM also coordinates area-related functions such as traffic circulation, population control, and rear operations with host nation elements.

Each TAACOM is made up of only those units needed to provide support. The number and types of subordinate units depend on the makeup, the number of corps supported, and the number of units located within its assigned area of the COMMZ.

SUSTAINMENT TO OTHER SERVICES AND ALLIES

Nearly all conceivable war scenarios are characterized by joint operations with the Air Force, the Navy, and the Marine Corps. Most scenarios for war at the mid- to high-intensity levels, particularly operations in developed theaters as a part of an alliance, involve combined operations. The Army will routinely provide CSS to other services and allies and receive such support from them. The Army, with its much greater volume resources, might routinely provide fuel to the Air Force. It may also provide Class I supply support to the Air Force, to Marine amphibious forces, and to Navy elements operating ashore. It may also support those elements with ground and some intratheater air transportation. The list of CSS functions which conceivably may be performed by Army CSS elements for sister services is long. For example, Army finance units may provide finance services to other US and allied services. Similarly, the Army will receive air and sea transportation support from the Air Force and Navy respectively.

Although CSS is normally a national responsibility in combined operations, there are many instances in which the Army will provide CSS to allies. Our policy in this regard is to provide that support specified in formal agreements and any additional CSS which facilitates operations. For example, an allied division operating as part of a US corps might well be provided fuel, food, and other common items of supply, particularly common ammunition items, for as long as it is operating with the corps. US formations operating under alliance commands may similarly receive support from the allied major command.

Mutual support is the most commonsense approach to allied and combined CSS. Formal agreements are made at the national level for combined operations. Joint CSS decisions are made at DOD and MACOM levels. They are further implemented in contingency plans at all levels. In-the-field agreements are made and executed routinely with sister services and allies.

SUSTAINMENT FROM OTHER SOURCES

While this manual has so far discussed the provision of sustainment by Army CSS organizations, that, in fact, is the least preferable way. The preferred technique is through a combination of host nation, third country, contractor, and US civilian resources.

HOST NATION

The Army must have the capability to conduct successful combat operations on any battlefield. Host nation support assists in the accomplishment of missions and functions in support of US forces and enhances the

capability of the Army to perform its wartime role. It is US Army policy to obtain host nation support for appropriate CSS functions in the corps and TAACOM in preference to using Army CSS units. When requirements for US personnel, materiel, and services are reduced in one theater, it allows for flexibility in assigning forces to other missions or other theaters and reduces strategic sealift and airlift requirements, thus allowing more combat power to be deployed. Host nation support may be appropriate at all echelons from the combat zone through the COMMZ. Factors which must be considered in determining suitability of using host nation resources to accomplish specific missions and functions include—

- The capability, dependability, and willingness of the host nation to provide and sustain identified resource needs. The theater commander and the Army component commander will seek to arrange as much support as is practical, pressing the host nation in peacetime to conclude the necessary agreements to ensure capability and dependability.
- The effect on security and reliability of support.
- The risk associated with host nation support being available in wartime in the type and quantity agreed upon.

Host nation support is normally based on agreements that commit the host nation to provide specific support according to prescribed conditions. Agreements occur at various levels, to include nation to nation; between component commands, major commands, and services; as well as in lower levels between units. Although formal agreements are the preferred means of obtaining and documenting host nation support, that is

not an absolute requirement. All forms of peacetime, transition to wartime, and wartime host nation support should be included in the planning process. Host nation support includes—

- **Government agency support.** Host nation government agencies build, operate, and maintain facilities and systems such as utilities and telephone networks and provide their services in support of US needs. Police, fire companies, and border patrols may be available to support US forces.
- **Contractor support.** Host country, third country, or US contractors located in the theater of operations, using host nation or third country personnel, provide supplies and services such as laundry, bath, bakery, transportation, labor, and construction.
- **Host nation civilians.** Host nation skills required include laborers, stevedores, and truck drivers as well as technicians and managers.
- **Host nation military units.** Host nation military or paramilitary units support US needs in wartime with functions such as traffic control, convoy escort, installation security, cargo and troop transport, POL storage and distribution, and rear operations.
- **Host nation facilities.** US forces use host nation buildings or facilities for hospitals, headquarters, billets, maintenance shops, or other activities. Host nation facilities may be nationalized, come under host country government control, or be provided by a contractual agreement.
- **Function or area support.** A host nation performs a particular function in

a designated area or for particular organizations within national boundaries. Some examples are rail operations, convoy scheduling, air traffic control, and harbor pilot services.

- **Services.** Host nation facilities and personnel can satisfy many administrative services and morale, welfare, and recreation demands. HN personnel can be used as clerks and couriers, for example. Use of local gymnasiums and other sports and recreation facilities can reduce requirements for US resources and increase the quality of service available.

- **Supplies and equipment.** Supplies and equipment needed for mission accomplishment may be acquired locally, precluding or reducing materiel shipments from CONUS.

US personnel will command US military units. However, US units may be placed under operational control of host nation commanders when the situation dictates.

The degree of command and control exercised by US forces over host nation support depends on the type of support, location, tactical situation, political environment, and provisions of umbrella and technical agreements. Communications channels are established. Language-proficient personnel are required to provide interface between US Army and host nation elements. Implementing plans must include request procedures and legal restrictions imposed by the host nation but should be directed toward ensuring the availability of the support.

In a friendly country, control of host nation resources is accomplished through coordination with local officials, when possible, and is covered by a treaty or HNS

agreement in coordination with the SJA. CA personnel aid this civil-military cooperation by providing an interface with indigenous authorities or military forces.

LOGISTICS CIVIL AUGMENTATION PROGRAM

The logistics civil augmentation program covers the planning process for the use of civilian contractors during wartime situations much as we did during the Vietnam war for transportation, construction, and a variety of other services. The objective is to plan for the use of civilian contractors to perform selected services in wartime to augment Army forces—either US, host country, or third country. Using civilian contractors in a theater of operations releases military units for other missions or fills shortfalls. This provides the Army with an additional means to adequately support the current and programed force. Specific advanced acquisition planning objectives are—

- To resolve the combat support and combat service support unit shortfalls represented in operations plans and in the Army program.
- To consider conversion of existing support units based upon availability of contract support in wartime.
- To provide rapid contracting capability for contingencies not covered by global OPLANs. Finance units will play a major role in supporting logistics units to provide this procurement capability.
- To provide for contract augmentation in CONUS during mobilization.

LOGCAP is designed primarily to be used in areas where no multilateral or bilateral agreements or treaties exist. However,

LOGCAP is applicable to areas with formal host nation support agreements, where contractors are involved or peacetime support contracts exist. LOGCAP is also applicable during CONUS mobilization to assist the CONUS support base and help units get ready for war.

DA CIVILIANS

The third source of support has increasingly become the highly competent DA civilian staff members who have signed agreements to remain in place in oversea activities in wartime. They will perform critical functions especially in the COMMZ in supervising or working in intermediate (GS) maintenance, identifying and solving weapon system problems (AMC logistics

assistance force), and continuing their essential peacetime CSS functions. Civilian personnel management is an important wartime PSS function.

CAPTURED MATERIEL

This source of materiel can contribute to the retention of momentum by maneuver forces and provide a decreased need to consume our own supply stocks and to transport them to using units. Obvious sources are captured or overrun enemy fuel supply points and materiel which may be used for barrier and fortification construction. Food and medical supplies may be used to feed and treat EPWs and civilians. Such use will reduce the work load and the materiel requirements of our own force.

Our principles and organization for battle support derive from the requirements which AirLand Battle doctrine imposes on the sustainment system. They have kept pace with the evolution of tactical doctrine and support its requirements. The requirement to man, arm, fuel, fix, and move forces has not changed; the "how" of doing it has changed to reflect more responsive and aggressive support of the battle. Both the principles of support and our internal support organizations have evolved with the development of AirLand Battle doctrine.

The remaining chapters outline battle support principles and the support structure used to sustain maneuver and combat support elements in normal operational variations and in special missions. For specific details on how each CSS element functions, readers should consult the appropriate functional manuals.



CHAPTER 2

Battlefield Sustainment

The preceding chapter addressed the environment in which CSS forces will sustain the force and the organization of these elements to best accomplish the sustainment mission. The purpose of this chapter is to draw the components together into an integrated whole and to provide guidelines as to how the component parts of the CSS system combine to support the commander's operational variations. Further, it discusses special CSS missions.

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INTELLIGENCE PREPARATION OF THE BATTLEFIELD

Good intelligence is critical to any military activity. IPB for CSS purposes considers those facets of intelligence which may have special significance for support operations. IPB is concerned with information concerning the enemy, weather, and terrain. CSS leaders and soldiers are attuned to the value of timely intelligence and use it to their advantage. It is most important that CSS leaders and staffs make known their requirements for intelligence in the form of priority intelligence requirements provided continuously to intelligence elements. Sound intelligence is equally important at both the operational and tactical levels.

THE ENEMY

Enemy intentions and capabilities affect CSS operations just as they do combat operations. There are many aspects of the enemy's makeup and actions that should be considered in making and executing CSS plans. The enemy's air capability influences

the locations of CSS facilities, to include headquarters, critical storage sites, ports and airfields, and transportation routes. It also influences the decision as to whether to conduct extensive CSS activities at night. The enemy's doctrine makes easier the assessment of his intent to conduct extensive deep battle and covert behind-the-lines activities to disrupt our CSS. His predicted use of chemical munitions affects the stockage of protective and decontamination gear.

THE WEATHER

A complete knowledge of the weather in the area of operations is of great assistance in making and executing CSS plans. The prevailing weather in an area dictates supply, transportation, maintenance, personnel, and medical decisions. Areas which habitually have heavy fog will slow ground movement of personnel and supplies and make aerial resupply virtually impossible. Heavy seasonal rain and flooding can

disrupt supply lines. Variations in weather can cause damage to materiel and personnel. Extremely hot weather can increase requirements for water, lubricants, and vehicle coolants and can cause heat-related casualties. Arctic environments require different lubricants, and they slow maintenance operations. They greatly affect transportation and supply operations. Both extremes in weather have different effects on soldiers and require special medical considerations. Knowledge of prevailing wind patterns is necessary for predicting downwind hazards of contamination.

Weather figured prominently in the June 1944 invasion of Normandy. Once postponed by weather, the invasion was made possible by a short break in the weather that enabled the Allies to get sufficient forces ashore to establish a beachhead for the enormous quantities of man and material which had to be landed. Fortunately, enough supplies and equipment were landed so that the subsequent storm destruction of specially built floating piers did not fatally affect the operation.

THE TERRAIN

Intelligence concerning the environment of present and future areas of operations is equally important to the CSS leader and staff officer. They make and maintain a continuous assessment of the terrain of present and future areas of operations. The availability and condition of transportation networks and facilities are of vital interest. The transporter seeks to determine whether port facilities are available and if they are usable with his equipment. He identifies potential supply routes and choke points

along them. The supply staff officer looks for storage facilities and staging areas. The medical officer looks for possible hospital facilities and air evacuation sites. All CSS leaders and staff officers need to have a comprehensive knowledge of the geography of the terrain to recognize potential inhibitors to their mission accomplishment. All seek knowledge of the populace of the area. The attitudes and feelings of the indigenous people are important since they are possible sources of labor, transportation, and some items of supply. Their attitudes may also dictate the degree of self-protective measures which CSS units must take.

OPERATIONAL SUSTAINMENT

Sustainment at the operational level comprises the logistics and support activities required to sustain campaigns and major operations. It differs from tactical sustainment only in that a longer planning and preparation period is normally available and that the supported operation normally lasts over a longer time period. Its effects are measured over longer periods—weeks and even months rather than over hours and days. Like tactical sustainment, operational sustainment is concerned with the three aspects of battle—close, deep, and rear operations. The theater commander must conduct close operations to defeat the main enemy force, deep operations to thwart the enemy's future plans, and rear operations to protect his own sustainment base. The support element must sustain those three aspects of the battle.

Operational sustainment is largely a CSS command and staff function because the

actual physical work is performed by companies to which moving supplies or maintaining equipment is the same at either the tactical or operational level. It is normally planned and controlled at echelons above corps. Operational sustainment planning is based on the commander's concept of how the campaign or major operation is to be conducted. It must be done concurrently with operations planning lest commanders and operations officers (G3s) plan what cannot be sustained with available resources; for example, CSS forces, supplies, and facilities. Sustainment planners must consider a host of factors and variations to plans. Their goal is to make the commander's intent achievable from a CSS standpoint.

The 1944 Allied invasion of Normandy and the subsequent breakout into Germany was a campaign designed to further the strategic objective of destroying the Axis armed forces and restoring the freedom of Western Europe. It was a classic example of the offensive campaign at the operational level. The sustainment effort for the campaign was enormous in magnitude. It was characterized by intensive preparation and was of long duration. It was a model of operational level sustainment for future CSS leaders. The campaign consisted of the establishment of a secure lodgment on the continent of Europe and the advance across France and the low countries into Germany. The major sustainment effort was to amass adequate amounts of equipment and supplies to support the initial landing and breakout and the requirements of reinforcing combat and combat support commands. Although beset by a number of difficulties, the CSS structure was successful in mounting the most extensive single sustainment effort of World War II.

Planning for campaigns and major operations, like that for tactical battles and engagements, considers all eventualities which can be foreseen. It considers operations throughout the depth of the planned area of operations.

Operational sustainment is almost always a joint effort. It is often a combined effort, like the invasion of Normandy. Because it is normally joint or combined in nature, agreement between services and allies should be well established and practiced in peacetime as well as in war.

Operational CSS planning begins with the commander's statement of his intent in conducting the campaign. CSS staffs then analyze existing information from past and current intelligence summaries and coordinate with all other staff sections to devise a concept of operations. Then the specifics of the sustainment plan can be developed and revised as more information becomes available. CSS staffs are chiefly concerned with the troop list and the area of operations. With the troop list they can make rough estimates of supply tonnages required within designated time periods. They can also estimate the CSS organization requirements. With the commander's concept and an analysis of intelligence data, they can select locations for such CSS facilities as staging areas; supply depots; hospitals; replacement centers; and air, rail, road, and water terminals. They can also select and designate supply routes through the duration of the campaign.

Initially, CSS efforts are concentrated on making the force ready for the campaign. The personnel system ensures that units and weapon systems are manned with qualified soldiers. Medical organizations work toward returning sick and wounded soldiers to duty. Transportation organizations are deployed

to best support the movement requirements of the force. Maintainers bring equipment up to the highest state of readiness. Supplies in sufficient quantities are marshalled.

As the operation unfolds, CSS leaders stay abreast of the situation, ready to reinforce successes with priority of support. Shifts in tactical lines of thrust are anticipated and supported. Forward bases of support are established as the force advances and lines of support are extended accordingly. As earlier support plans are rendered obsolete by tactical developments, new ones are formulated. The CSS system remains flexible enough to support the commander's revised guidance. When it appears that routine CSS may inhibit a commander's options, extraordinary and innovative measures are taken to limit the inhibiting conditions.

Of special note in sustaining forces at the operational level are—

- **Lines of support.** Lines of support must be selected before further CSS plans can be completed. There are advantages and disadvantages to both interior and exterior lines of support. Interior lines of support allow the location of large, key CSS facilities at central points. Interior lines normally require fewer transportation resources since distances are shorter between support bases and the supported combat formations. Disadvantages include the heightened vulnerability of centrally located facilities. Exterior lines of support originate from multiple support bases and normally require a greater redundancy of CS and CSS units and facilities. On the plus side, those units and facilities provide redundancy of

support and make enemy interdiction efforts more difficult.

- **Staging.** The many activities associated with staging may occur during different phases of operations. An initial staging area may be located outside the area of operations as it was in the United Kingdom before OVERLORD. It may also occur at a later stage of a campaign as forces advance and LOCs are extended. This latter occurrence might require the establishment of forward support bases along with the many CSS tasks associated with such staging; for example, improvement of roads, railways, and storage facilities; movement of equipment, units, and supplies; and movement control. Staging forward or rearward from established bases may, especially in fast-moving operations, inhibit combat operations because CSS in movement is not optimum support. A decision to not stage support forward can result in longer LOCs with attendant increased requirements for transportation and decreased responsiveness. The decision-making process involves constant awareness of CSS status (supply levels, transportation resource availability, availability and condition of LOCs, and personnel resources). It is a continuous process, and it involves continuous dialogue between staff sections and the commander.

- **Altering lines of communication.** The fluid, high-speed nature of the modern battlefield will provide unprecedented opportunities to exploit enemy weaknesses. It may also create situations in which our weaknesses must be shored up. Often these situations require

shifting LOCs. The decision to shift LOCs is normally an operational decision, but it has great implications for CSS leaders. Shifting requires very careful planning and intensively managed execution. There is the normal problem of continuing to provide support while moving support resources. In addition, there is a major movement control effort when maneuver units use routes over which support normally flows. Highway control plans must be carefully made and stringently enforced. Fueling resources may have to be moved quickly to support maneuver units. Many CSS facilities, to include ASPs, may have to be moved, creating the potential for gaps in ammunition flow and an unexpected stress on the transportation system. The best method of supporting LOC shifts is to be aware of their likely occurrence and have continuously revised plans ready.

- **Sustainment priorities.** It is rare that armies have enough of everything, particularly on such a resource-hungry battlefield as that we are likely to face in the future. To ensure depth in operations, commanders must establish and, at times, ruthlessly enforce support priorities. Support priorities are normally given to the most vital organizational entity involved in the operation. The corps making the main attack might be given priority for support. Further development of the situation might then cause a shift in priority to another corps having unusual success. At the operational level, assignment and shifting of priorities drive CSS operations. Shifts of priorities between corps may involve shifting of LOCs and relocation of CSS units and

facilities. The CSS system, then, must be flexible enough to rapidly change its focus. Sustainment priorities also go beyond priorities among organizations. For example, equipment shortages mandate maintenance priorities at both IDSM and IGSM levels. Priorities are normally established to manage any critical asset. Transportation priorities are established and maintained at all levels. Assigning or shifting priorities always involves disadvantages and risks. The disadvantage is that lower priority organizations will be hampered in their operations. Support priority decisions are, then, carefully considered and risks are identified.

TACTICAL SUSTAINMENT

Sustainment at the tactical level comprises the logistics and support activities required to sustain battles and engagements. It normally comprises support to corps and smaller formations. It is more immediate than operational sustainment. While battles may last for weeks, they are normally measured in days or even in hours. Tactical sustainment involves the range of CSS elements from maneuver battalion support elements to corps support commands. It may involve support by echelons-above-corps CSS elements.

Flexibility and innovation characterize tactical sustainment. Task organizations are formed and reformed to support the tactical commander's plans. The execution of tactical sustainment should enhance, not slow, the commander's momentum. Weapon systems should be fueled, armed, and manned at a

place and time most supportive of force operations. The aim of tactical sustainment is the removal of inhibitors to the tactical commander's scheme of operations.

Tactical sustainment, like operational sustainment, includes support to the three elements of the battle—close, deep, and rear. Just as the tactical commander is responsible for conducting operations throughout the depth of his area of responsibility, the CSS commander is responsible for sustaining the battle in those three areas. While CSS sustainment principles remain the same in supporting the various forms of maneuver, different techniques are used in each.

SUSTAINING CLOSE OPERATIONS

Offense

An offense may be launched at any time and with minimum advance warning. Therefore, CSS planners must continuously keep informed of operational plans and anticipate offensive operations even while supporting other types of operations. Similarly, the combat operations planner must be kept apprised of the CSS situation so that he does not plan what cannot be supported either logistically or with personnel. The ACofS, G1, G4, and G5 at corps and division serve as principal links between operations planners and CSS operators. The objective of CSS in support of offensive operations is to maintain the momentum by supporting as far forward as possible.

Supply. To prepare for an attack, CSS elements ensure that all support equipment is ready and that supplies are best located for support. They also ensure that sufficient transportation is available to support the tactical and logistics plans and that all CSS elements are informed of their responsibilities in the operation. Consideration

must be given to the nature of offensive operations as it affects CSS operations. High fuel consumption will dictate that provision is made to build up quantities in forward locations—while avoiding signaling our intentions to the enemy—and ensure that Class III supply elements can move forward as the attack develops.

Ammunition expenditure is typically less in offensive operations than in heavy defensive combat and is lowest in light defensive actions. However, responsive support for offensive operations is especially critical and is made more difficult by lengthening of supply lines and by critical requirements for user resupply vehicles to stay close to firing elements. In preparing for the attack, the following must be considered:

- Ammunition is placed close to the user.
- ASPs and ATPs must be prepared to rapidly displace forward as the attack advances.
- Artillery ammunition is stockpiled at designated firing positions.
- Provisions are made to move ammunition forward with advancing elements to ensure that basic loads can be replenished quickly.
- Weapon systems are fully armed prior to the attack.

While Classes III and V are the most important supplies in the offense, consideration must be given to all classes. For example, while the need for barrier and fortification material decreases, the requirement for obstacle breaching and bridging material may increase. These supplies must be available immediately if the momentum of the offense is to be maintained.

Weapon system replacement requirements may be higher since weapon systems are subjected to increased exposure to fire during offensive operations.

The fundamental principle of supply support in the offense is responsiveness to the user. Supplies must be provided when they are needed. Planning; coordination; communications; and, above all, flexibility are key elements to be considered. Supply is more difficult in the offense than in the defense simply because of the ever-changing locations of units and their support areas. The concept of forward support becomes even more important and increasingly difficult in the offense. Likewise, CSS planners have to coordinate preparations with deception plans to avoid giving away the element of surprise.

Transportation. Transportation resources can be expected to be heavily taxed. Wide dispersion of units and lengthening lines of communication, coupled with an increased requirement for personnel replacements and some classes of supply; for example, fuel and weapon systems, will demand the closest coordination and planning for the use of transportation assets. Resources, to include pipelines, railroads, and waterways which may be secure in the more stable environment of defense, cannot be depended upon in the offense.

The mobility of offensive operations dictates that primary reliance must be placed on motor and air transport. When considering the air transport mode, the planner must also consider airdrop. The DTO's and corps MMCs must coordinate closely with the corps MCC to ensure that movement requirements and transportation assets are balanced to ensure optimum support. Priorities must be established and followed to

ensure that the most essential commodities are moved to the areas of greatest need.

Class III bulk transporter assets throughout the theater must be intensely managed, particularly if the attack is highly successful and results in exploitation or pursuit. The attack and the general offense will require the most efficient use of fuel transporters from battalion to theater army levels.

The requirement for all types of transportation can be expected to be extensive throughout the theater. Supply lines to combat and combat support forces lengthen during offensive operations, and rearward bases of supply and other facilities and units must be moved forward.

Maintenance. Since momentum and massing at critical points are crucial in the attack, maintenance operations must be planned to support those concepts. Momentum can best be maintained by repairing at the point of malfunction or damage. Momentum is enhanced when the maximum number of weapon systems can be kept operable and mobile. Therefore, mechanics must be able to perform their mission in the forward area.

There is an increased demand on unit and IDSM resources. Unit mechanics must accompany or follow the most forward attacking elements. IDSM elements in the form of maintenance support teams may also operate with the spearhead of the attack. Plans must be made to recover systems and components which cannot be quickly repaired on the spot and to evacuate them to where they can be repaired. Emphasis is placed on battle damage assessment and repair to rapidly return disabled equipment to the commander by expeditiously fixing, bypassing, or jury-rigging components.

MSTs and other elements must be properly configured (MOS and quantity), equipped (transportation, common tools, special tools, TMDE, and communications), and supplied (components, assemblies, and repair parts) to perform their missions. Highly trained mechanics must make hasty, but informed, decisions as to—

- What can be repaired on the spot.
- What should be evacuated.
- What should be cannibalized.
- What should be abandoned after it is made useless to the enemy, if operational necessity and damage require it.

Guidelines based on time required to return the system to use may be established. For example, what cannot be repaired on the spot within a certain number of hours should be evacuated or reported to the next higher level and left to be repaired by following units. MSTs must report the location of items left in the field to their parent maintenance control element which will coordinate recovery and evacuation.

Medical. Offensive operations will also increase the burden on medical resources. The deliberate attack, particularly, can be expected to result in high casualty rates. Therefore, medical treatment and evacuation resources may be extended to their limits. Corps hospitals are displaced forward in preparation for the initiation of offensive operations to provide maximum treatment and holding facilities when they are most needed.

Increased demands on the evacuation system can be expected. When organic medical evacuation resources are exceeded, nonmedical transportation assets may be

required, placing an even greater demand on the transportation system.

During the offense, medical facilities usually displace forward by echelon so that the forward location is operational before the rear location is closed.

Field Services. The main logistics effort in the offense will be to provide only the most critically needed support to the attacking force. Therefore, most field service support functions will play a minor role and some will probably be suspended until a more stable environment is achieved.

Graves registration is a major exception. It will continue and may intensify. Graves registration units must maintain close communications with P&A elements to verify casualty data, aid in the identification of remains, and assist in the reconciliation of strength and personnel data. Airdrop is also a primary field service which will be in greater demand due to the mobility of offensive operations.

Personnel Services. The forward movement of maneuver units may decrease or curtail PSS elements' ability to support the force. As advancing combat formations extend control of the battle area and lulls in the battle occur, PSS elements must consolidate P&A data and reconcile command and control, strength management, and personnel management data. PSS support to units is provided on a direct or area support basis.

Defense

Generally, CSS in support of the defense has several characteristics, among which are—

- Supply activity will be greatest in the preparation stage. Stockpiling should

be far forward and at successive defensive positions. While many supplies—especially munitions and barrier material—must be kept far forward, these assets should have as much mobility as possible to allow continuous support as combat power is shifted in response to enemy attacks.

- Positioning of facilities/installations should be far enough in the rear to be out of the flow of battle and relatively secure but not so far as to render the logistics effort less effective.
- Maintenance teams should be placed well forward to return the maximum number of weapon systems to the battle as soon as possible. Likewise, critical components such as gun tubes, track, and other high-bulk items should be placed forward to overcome the effects of combat wear and damage.
- Personnel replacements must be packaged as squads, teams, and crews (when possible) to facilitate movement to units. Linking replacement activities and equipment issue points requires close coordination between medical, logistics, and personnel managers.

CSS units are located, where possible, out of the reach of possible penetrations in protected and concealed locations. They are serviced by good road nets. Maximum use of built-up areas is made. Dispersion is made consistent with support requirements, control, and local security. Passive security measures are emphasized. CSS operations are routinely carried out at night.

Supply. ASPs and ATPs should be located to provide the most rapid and responsive support. Using units may stockpile Class V supplies in excess of their basic loads. Class V

supplies may also be placed on successive defensive positions both for easy access and to lessen transportation problems during the withdrawal to those positions. The defense usually requires a greater volume of Class V supply than does the offense. Class IV and V supply requirements, especially mines and barrier materials, are heaviest during the preparation for defense. Both Class IV and V barrier supplies should be moved from corps GS supply and ammunition companies by corps trucks as close to the barrier sites as possible to minimize handling and facilitate rapid installation of barriers. Actions must be initiated to increase the flow of these materials as soon as the intention to defend is known.

Transportation. Transportation resources are also most critically needed in the preparation stage of the defense. They are required for the stockpiling of supplies discussed previously. They may also be required to shift personnel, weapon systems, and supplies laterally or in depth to meet the probable points of enemy attack. Even as support of the defense continues, planning for subsequent offensive or retrograde operations is to our advantage.

Maintenance. The primary thrust of the maintenance effort in the defense should be to have the maximum number of weapon systems ready before the battle. Also, once the defensive battle begins, the thrust is to repair the maximum number of damaged/inoperable systems and return them to the battle in the least time. This makes it mandatory that maintenance be provided at, or as near as possible to, the intended area of operation of the system. This means maintenance forward by whatever combination of personnel, equipment, and parts is required. Consideration should be given to augmenting maintenance to covering force

elements when they return to the MBA so that they may more rapidly be returned to fighting condition.

Medical. The task of front-line medical units is to stabilize the wounded, sort them, and evacuate patients who cannot be immediately returned to duty. Priorities for evacuation must be established based on the location of the probable enemy main effort. Clearing facilities are located away from points of possible penetrations. Additional helicopter evacuation capability may be required for peak loads.

Field Services. The field service functions of laundry, bath, clothing exchange, and bakeries operate routinely where the tactical situation permits. Care should be taken to ensure that such facilities are located out of the way of tactical units. Graves registration units evacuate the dead quickly.

Personnel Services. The depth and dispersion of the defense may create significant time and distance problems in PSS. Forward area acquisition of information may be complicated by enemy action and the initial direction of the maneuver. Increased work load among exposed PSS elements/units will reduce their support capability. Maneuver forces may be forced to rapidly displace while simultaneously carrying current command and control strength management data to the rear.

Retrograde

Planning the CSS support for a corps-sized force is a challenge in itself. Planning the support for a corps retrograde operation is particularly complex and challenging.

A retrograde operation is rarely an end in itself. Normally retrograde operations will culminate in the establishment of the defense in a new area. Additionally, at the corps level

the retrograde will normally be planned as an orderly phased operation. Thus, when planning support for the all inclusive operation, the CSS staff officer will be planning for the support of at least three phases or for support in three distinct areas.

While plans and orders are being developed for the actual retrograde, support elements must continue to support the current operation. Next, CSS elements must support the retrograde—the delaying forces and the forces out of contact moving to the rear. Finally, the CSS elements must provide support at the new position for units as they arrive at their new locations and for the entire force upon completion of the retrograde operation. The CSS staff officer must plan for support of the old defense, the retrograde operation, the new defense, and the transition to and conduct of new offensive operations.

Centralized control is a characteristic of retrograde operations—centralized control of the combat, combat support, and combat service support operations. This is necessary due to the complex nature of retrograde operations. A multiplicity of missions, the movement of large forces, and time and space phasing all contribute to the requirement for enhanced centralized control.

Within the logistics area this control is accomplished first through detailed planning and then through precise management of plan execution. The logistics staff and the management centers (materiel and movement) must supervise priority shifts to accommodate the corps/division retrograde plans.

Units and materiel must be moved in strict compliance with preestablished schedules. Medical support—allocation of hospitals, evacuation policy—must be tied closely to the retrograde plans to ensure

preservation of support capabilities for succeeding operations.

It is especially important that communications between supported and supporting elements be maintained so that the supporters are continuously aware of the changing situation and the requirements of the supported elements. The personal involvement and "on the scene" appraisal of the situation by CSS leaders is just as important to mission accomplishment as is the personal involvement of combat leaders and staff.

Supply. Supply efforts during the retrograde must be concentrated on the most critical supplies: Classes III, V, and IX. The key to providing responsive supply support during the retrograde is to project force supply requirements throughout the operation and to distribute these supplies according to the projections. When projections are made, provisions are made to supply forward only essential supplies. All other supplies are moved rearward to the new support areas.

It will also be necessary to divert the resupply entering the corps area to the new positions. To reduce the amount of supplies that must be relocated from the forward areas to the new rear supply areas, a technique of "drying up" the forward supply points may be used. Supplies should be shipped to forward supply points only until the forward stocks approximate what is required in the forward areas to support the delaying forces. When this balance is achieved, the supplies are diverted to the rear areas. The delaying forces will then be supplied from these forward supply points until stocks are depleted, thus avoiding a last minute requirement to retrograde remaining supplies.

Consideration should be made to having limited, mobile supply forward to support the covering force. This, of course, will put a strain on limited transportation resources. Consideration should be made to providing fuel forward on fuel trucks or rail tank cars to avoid last-minute evacuation of empty fuel bladders. If sufficient tractor trailers are not available for mobile Class V supply points, ammunition may be placed "on the ground." Ammunition may be placed throughout the delaying or covering force area so that forces can "fall back" on a continuous supply.

Transportation. The transportation system will be severely strained to support corps-sized retrograde operations. It will be required to continue to move essential supplies forward and evacuate supplies, materiel, and personnel rearward. It will also have to support corps elements which are not 100-percent mobile with organic vehicles. It is therefore absolutely essential that all available transportation—watercraft, rail, air, and truck—be carefully managed and used to the maximum.

All movements must be programed throughout the entire retrograde period to eliminate unnecessary surge periods. Continuous management by the MCC and close coordination with the MMC for movement requirements are essential. Priorities must be established and adhered to so that essential movements can be accomplished in a timely manner. Highway movements must be regulated (transportation function) and then controlled (provost marshal function) to avoid highway congestion. Traffic circulation must be designed, evacuation routes must be identified, and movement schedules must be published.

Maintenance. Continuous maintenance

support throughout the retrograde operation will be essential to keep the maximum number of weapon systems operational. Therefore, the maintenance planning effort must concentrate on providing essential support forward while moving the bulk of the maintenance units to the rear.

IDSMS teams should be organized to provide support to major weapon systems in the forward areas—on site if feasible. Maintenance efforts should concentrate on the “quick fix” items using assemblies brought forward to facilitate “quick change” (replacement rather than repair). Controlled exchange and cannibalization should be maximized in the forward support concept.

Medical. While hospitals are being moved, they temporarily lose their bed capacity. Thus, during the retrograde period there may not be enough beds to accommodate patients. If temporary facilities (civilian facilities) cannot be obtained, additional patients must be evacuated to theater army or CONUS hospitals.

The patient evacuation capability of the corps will be strained due to the additional requirement to move patients during the displacement of the hospitals. It may be necessary to request nonmedical transportation (truck, rail, and air) for the movement of the less severely wounded personnel during this period. HNS transportation should also be used when possible.

Field Services. The logistics staff officer will be faced with the decision as to what field services will be required during the retrograde operation. If services such as bakery or laundry are determined nonessential, personnel and facilities to perform these functions should be evacuated early and established in the new area. If the decision is made to

suspend nonessential services, those resources may be used to support a deception operation or aid other units in movement.

SUSTAINING DEEP OPERATIONS

Deep operations can be executed in two ways—deep fires and deep maneuver. The former is sustained as described in the close operations discussion. Deep maneuver demands especially detailed sustainment planning because of its great risks. There are two ways in which deep maneuver can be sustained. The force can carry with it all the resources needed throughout the mission, or it can be sustained over a line of communications. Both methods have strengths and weaknesses. In each case, early in the planning for deep maneuver, the CSS planner must describe for the commander the CSS assets available, their likely usage and replenishment prospects, and likely consequences for the supported force. Such an assessment assists the commander in assessing the risks involved.

Self-Sustainment

The concept of self-sustaining deep operations forces is situationally dependent. The depth and duration of the operation, the size and organization of the force, the enemy situation, and the weather and terrain are all variables which must be considered.

The division is generally considered to be the smallest force which is capable of conducting deep operations. The division can sustain itself for only a few days without external support. It can carry little other than its basic load. Therefore, the depth and duration of the operation are factors in deciding on self-sustainment as the preferable option. While limited self-sustainment is possible through foraging for some supplies

(principally POL), the uncertainty of obtaining those supplies argues against reliance on foraging.

Another technique of self-sustainment is the attachment of a support task force to the maneuver force. It is feasible, for example, to task-organize a CSS force comprised of corps assets to accompany a division force on a deep operation. While sustainment is enhanced, the maneuver force may be slowed down by the support force which will not have the cross-country mobility or the survivability of the combat force. The combat force may be further hindered by the requirement to secure the support force which will detract from the total combat power of the force.

Sustainment Over a Line of Communications

A force conducting a deep operation should be sustained through both a surface and an air LOC. Both offer advantages and disadvantages. Both are also dependent on the situation.

Sustainment over a surface LOC has the advantage of the capability to carry large tonnages of supplies and equipment to specific destinations. It is less subject to the vagaries of weather than air LOCs. A disadvantage is that the LOC extends far beyond the FLOT into territory that is subject to enemy influence and control. The LOC must be either temporarily or continuously secured. Continuous security will allow the uninterrupted flow of supplies and equipment to the deep operations force. The price is tying up scarce combat and combat support resources required to secure long lines of communication. Temporary security of the LOC means that it must be opened, allowed to close, and reopened each time supply convoys go forward or return to the support base. This is also expensive in terms

of forces needed to protect the supply convoys. Sustainment over a surface LOC can be made less difficult by staging supplies near the FLOT. Supply vehicles directly supporting the force will have shorter distances to traverse. Conversely, the staging element is placed at risk, and combat elements are usually required to secure it.

Sustainment over an air LOC has the advantage of being fast and responsive. It has the same disadvantage as sustainment over a surface LOC. The LOC must be either temporarily or continuously secured. This implies a requirement for temporary or continuing air superiority or, at least, parity. These conditions require close interservice cooperation because much of the airlift capability will be Air Force. The operation will require priority for use of tactical aircraft providing security and for logistics aircraft carrying cargo. Army aircraft—especially CH-47 and CH-60—will be used intensively, but they have less tonnage capability than Air Force airlift. Air LOC sustainment can be carried out through air-landing, airdrop, or by a combination of the two. Air-landing requires that landing fields be obtained and secured. Airdrop in the tonnages required for such an operation requires large quantities of airdrop and ground support equipment which, if recovered, will be difficult to return to the support base for re-use. Army airlift has the advantage of far greater flexibility requiring no airfields, requiring little rigging equipment, and giving faster response to emergency requirements.

Planning and Execution

A high degree of risk is nearly always inherent in the support of deep operations. However, the risks must be taken because often the advantages obtained by successful deep operations may far outweigh the risks.

The CSS commander, in concert with the tactical commander, must simply devise the best support plan possible and execute it to the best ability of his command. Since deep operations are risky and so dependent on the factors of METT-T, bold, innovative approaches must be taken in supporting them. Risks must be identified and conveyed to the operational commander in terms that are meaningful to him. Then risks are reduced to the minimum by careful planning and bold execution.

Sustainment to Special Operations Forces

Although special operations forces will not always conduct deep operations, many of their objectives will be the same as those of conventional maneuver forces conducting deep operations. This, then, is a convenient place to acknowledge the CSS requirement to support special operations forces. Although they have some unique requirements, they are generally supported in the same manner as other force components. The source of support will vary with the situation. The methods used may well require local imagination and innovation. It is incumbent on the special operations forces logistics staff to make requirements known and to coordinate with the CSS providers the details of those requirements. It is the responsibility of CSS elements to provide support according to command policy and directives.

SUSTAINING REAR OPERATIONS

Rear operations are conducted in the rear area of all echelons. The purposes of rear operations are to—

- Secure the force.
- Neutralize or defeat enemy operations in the rear area.

- Ensure freedom of action in close and deep operations.

The rear operations goal is to provide security of rear area facilities, installations, and forces to ensure unimpeded operations in the rear area. Without that security and freedom of action in the rear, the force conducting close and deep operations cannot be sustained.

CSS organizations are normally the units least capable of self-defense and are often the targets of enemy action. Time and effort used to defend themselves and to support the total rear operations effort degrade their ability to perform their primary mission. However, enemy doctrine stresses their own operations in their enemy's rear area. Our CSS assets must be secured.

Doctrine for conducting rear operations focuses on avoidance, dispersion, self-defense, and mutual defense. Control and coordination of rear operations focuses on three areas: division rear area, corps rear, and COMMZ. The rear command posts at division and corps control rear operations in those areas; the TAACOM headquarters have COMMZ responsibility. Responsibility in the corps rear area and COMMZ is further subdivided to support groups for their geographic areas.

The rear operations officer at all echelons is assisted either by a RAOC or by an internal staff element which serves as his command and control headquarters for rear operations. RAOCs or rear operations staff sections perform centralized planning, coordination, and supervision of rear operations. The RAOC/staff section is structured to plan, coordinate, and supervise rear operations and to provide advice and assistance to those units which will execute them.

Coordination and clear lines of authority are crucial to rear operations success. The rear operations officer needs tasking authority within the entire area. Depending on the factors of METT-T, the rear operations officer may need, for example, to task MP and engineer forces operating in the area. The echelon commander must take care to delegate the authority required and to make that decision known to all.

Rear operations doctrine rests on the ability of all units to provide themselves with a degree of self-defense capability. All units should be able to defend against Level I activities. They should be able to impede Level II attacks to buy time for assistance to arrive. No CSS unit can sustain a defense against a determined Level II or III attack, but it can impede both and buy time.

CONTINGENCY OPERATIONS SUSTAINMENT

As defined by FM 100-5, contingency operations are military actions requiring rapid deployment to perform military tasks in support of national policy. Once deployed, the Army force will conduct operations in accordance with our general warfighting doctrine. Sustainment of the force follows the same pattern. Once the force and its support package are deployed, sustainment will be conducted by the system described elsewhere in this manual. There are, however, unique factors involved in sustaining contingency operations.

Contingency forces will normally rely on airlift for initial deployment of the force and for support. Emphasis will be placed on deploying maximum combat capability. Sup-

port will be reduced to the essentials—initially food, ammunition, and fuels. The initial support package must be carefully tailored to ensure that projected requirements and critical support to include units is provided. Based on the local support that can be obtained, careful attention must then be given to the phasing in of follow-on CSS resources. Support elements will make optimum use of local resources such as fuel, transportation, facilities, labor, and services.

Qualified personnel authorized to purchase goods and services or to let contracts and to render payment should be deployed early. Use of local resources reduces the requirement to deploy CSS assets. Maintenance policy should be directed at reducing the requirement to deploy an extensive maintenance force structure. PLL and ASL stockage criteria should focus on essentials. The medical evacuation policy should minimize a wounded soldier's stay in the area and the requirement for a large medical contingent.

Major commands and corps continually plan for foreseeable contingencies. At that level, CSS staffing levels are normally adequate for that task. FM 63-3J contains detailed staff guidance on support of contingency operations. Many of the details therein are applicable to staff and unit procedures at battalion, brigade, and division level.

SPECIAL SUPPORT REQUIREMENTS

While CSS focuses on supporting maneuver and combat support elements in conducting rear, close, and deep operations, there are special support requirements which

deserve discussion. Some are directly related to supporting battle but occur throughout the spectrum of rear, close, and deep operations. Some are not direct battle support but are tasks which must be accomplished.

WEAPON SYSTEM REPLACEMENT OPERATIONS

Weapon system replacement operations is a method to supply the combat commander with fully operational replacement weapon systems. WSRO is simply a procedure for bringing a weapon system to a ready-to-fight condition and handing it off to the combat unit. It involves deprocessing the vehicle from a storage or transport configuration, making it ready to issue, and marrying it to a complete crew which makes it ready to fight. It is discussed here as a special support effort only because the WSRO system has become an intensively managed process for providing the commander with usable weapon systems in the shortest possible time.

WSRO must be managed at each level of command to ensure maximum use of the major weapon systems. Management procedures for all critical weapon systems and their crews must be developed on an individual basis applicable to the organization concerned. In order to manage weapon systems, a common weapon system manager is required. A WSM is designated at each level of command. The mission of the WSM is to maximize the number of operational weapon systems in accordance with the commander's priorities. WSMs at all levels are charged with "quick-fix" responsibility, matching serviceable vehicles and surviving crews.

Incoming weapon systems (for example, tanks) are deprocessed by a heavy materiel supply company or other suitable unit in the TAACOM or COSCOM. This occurs at or

near the port. Weapon systems are then transported to corps or division.

Those weapon systems stored in theater war reserve stocks must be at a low level of preservation so they can be made ready for issue within a few hours, not the several days required to deprocess from Level A storage.

Rail is used to the maximum extent possible. If rail is not available, shipment will be by heavy equipment transporter. New crews arrive in theater at the rear of the corps and are transported forward to the division support area by the most expeditious means. Ready-to-fight weapon systems are normally transported to battalion by HETs. They may be driven under their own power, but this is far less desirable. If ready-to-fight weapon systems are formed at COSCOM, they may travel from corps to division by rail or HET and are normally transported to battalion by HETs.

The primary linkup points for weapon systems (tank with crew) are in the division support area or in assembly areas for formations in reserve. The DISCOM/support group commander organizes the linkup point and provides personnel to make the weapon system ready for issue. The crew, working with division elements, makes the weapon system ready to fight.

Conditions permitting, some familiarization training may be provided to crews in the linkup area. It is better accomplished in the COMMZ after initial reception. Such training should include refresher gunnery, tactical driving, enemy and allied vehicle identification, passive air defense procedures, local SOPs, and any other subjects appropriate to the operational area. New tankers can join a partial tank crew (those whose tanks have been destroyed or evacuated to ISDM) at linkup points to form

complete crews. There they pick up a replacement tank, make it ready to fight, and rejoin their unit or join another unit as directed.

Whenever possible, experienced soldiers should be mixed with replacement soldiers to form complete crews, teams, or squads. Training of replacement crews for nondivision units may be accomplished by corps. It is not intended that such wartime training should be elaborate or substitute for crew qualification. The intent is to familiarize crews with operating conditions in the combat area.

RECONSTITUTION

Reconstitution will be performed in support of rear, close, and deep operations. While it will most frequently be accomplished in support of close operations, units returning from deep operations may require it, and rear units suffering catastrophic losses may also require reconstitution. Although reconstitution is largely a command and operations (G3) function, the actual refitting, supply, personnel fill, and medical actions are conducted by CSS elements.

There are two methods for conducting reconstitution—reorganization and regeneration. Reorganization is action taken to shift internal resources within a degraded unit to increase its level of combat effectiveness. Regeneration is action taken to reconstitute a unit through large-scale replacement of personnel, equipment, and supplies; reestablishment of essential command and control; and the conduct of mission-essential training—all directed toward restoring the organization's cohesion, discipline, and fighting effectiveness.

Reorganization is normally done at unit level and does not require extensive external support beyond supply replenishment, maintenance assistance, and limited personnel

replacement. Regeneration is more difficult to execute because it requires a greater amount of effort, coordination, training, and consumption of materiel. Regeneration is normally accomplished by the echelon two above the organization to be regenerated—brigade by corps, division by theater army. The corps or theater army provides needed resources by changing priorities for supplies, equipment, and other CSS and tasking an organization to provide direct support to the organization being regenerated.

CSS elements play a large role in regeneration because of the requirement to replace personnel, equipment, and supply resources and to treat casualties. A CSS element location might well be the site selected for regeneration because supplies and equipment are stored there. A divisional brigade would undergo regeneration with the direct support of a corps support group. Likewise, a TAACOM area support group would coordinate the regeneration of a division. The location should be near sources of supply and/or maintenance facilities. It should be served by an established transportation network. Medical and personnel service resources should be readily available.

All elements of the command must be prepared to participate in regeneration tasks. Being prepared implies planning. While the identity of units candidate for regeneration cannot always be predicted, the general requirement for reconstitution can be. If a general plan exists and is well understood, its execution can be tailored to the particular requirement. CSS reconstitution planning should include such considerations as—

- **Location(s) for reconstitution.**
- **Equipment requirements.** What are the most likely candidate items of

replacement equipment? Will they be available?

- **Supply replenishment.** What types of supply will be needed? Will they be available?

- **Personnel replacements.** What individual (by MOS) and small unit (team, crew, squad, section) replacements are most likely to be required?

- **Transportation.** What are the transportation requirements for moving the unit and its equipment to the reconstitution site and/or for moving replacement equipment and personnel and replenishment supplies to the site?

- **Decontamination.** If decontamination must be done, who will do it? Where?

- **Medical requirements.** Will medical treatment be provided at the site or will further evacuation be required? Are there sufficient resources to treat the numerous battle fatigue casualties likely to be present in the unit?

- **Maintenance.** What type of maintenance support teams/units are likely to be required? What repair parts and what types of equipment will be required?

- **Morale, welfare, and recreation.** What MWR resources can be provided to allow soldiers even a short respite? MWR is especially important when a unit has taken major losses and is awaiting reconstitution.

The above considerations are not all inclusive and are all situationally dependent. What is important is that they should be considered beforehand in a reconstitution plan that is adaptable to changing situations.

Even before an attrited unit arrives in the reconstitution site, restorative efforts begin. They are accomplished within the unit and by external resources. If feasible, basic loads are replenished at the battle location and enroute to the reconstitution site. Class III resupply may be critical to moving the unit to the reconstitution site. Class V should be uploaded to provide the unit a self-defense capability. Water, rations, and critical repair parts may also be needed immediately. Recovery and evacuation begin immediately. Emergency medical treatment begins immediately and continues into the reconstitution site. All these efforts require close coordination and quick reaction among a number of assisting elements.

Once the unit reaches the reconstitution site, all classes of supply are replenished. Among the more critical will be Class VII, particularly weapon systems. Class VII will come from a number of sources; for example, PWRMS, if still available; evacuated and repaired equipment; redistributed assets; and equipment received through the normal replacement supply system. All assets should be made as ready-to-issue and ready-to-fight as possible.

External as well as internal transportation assets will be required during all stages of regeneration. Medical evacuation requirements in excess of the medical system capability must be satisfied. Transportation resources will be required to evacuate disabled and damaged equipment and to surge supplies, equipment, and personnel to the reconstitution site.

Unit and IDSM personnel will be concerned with getting the maximum amount of equipment to enroute maintenance sites and to the reconstitution site. They will concentrate on restoring equipment to at least

minimal operational capability for return to the unit. Emphasis is placed on the repair of end items critical to the unit's effectiveness and according to the commander's priorities.

Emergency medical treatment begins as soon as possible and as far forward as possible and continues rearward. Triage procedures are used for the greatest benefit of the force. Soldiers with minimal injuries and wounds are returned to duty as soon as practicable. Combat stress is treated as soon as possible.

GRREG assets will be in demand along the route to and at the reconstitution site. Clothing exchange and bath services should be available. Decontamination units may be needed; however, decontamination should be done enroute in selected decontamination sites, if possible. Pastoral care and religious services should be available.

Individual replacements will come from the replacement system, medical returns, and from redistributed assets. Individual replacements generally take time to be integrated into units and to train. Replacement personnel are oriented to the unit and provided initial training in the positions they will ultimately fill.

SUSTAINMENT ENGINEERING

Sustainment of deployed forces is heavily dependent upon the facilities and communications networks that give physical structure to the lines of communication. These set the upper limit on the capacity of CSS organizations to provide materiel and services to the theater and subordinate commanders. Engineer organizations from theater down to battalion/task force level keep the LOCs open and viable by performing sustainment engineering tasks.

Sustainment engineering supports the deployed force in rear, close, and deep operations by the construction, maintenance, and repair of LOCs and dismantling of fortifications. The relative portion of engineer effort devoted to each category depends upon the level of conflict, the maturity of the theater's infrastructure, and the size of committed forces. For example, a mature theater in a high-intensity conflict will need more repair work than new construction. Conversely, a low-intensity conflict in a less developed theater may need a large amount of new construction to provide the minimum essential facilities and supply routes.

Specific sustainment engineering tasks vary throughout the theater. In the COMMZ, port and base camp construction provide the facilities for off-loading and storage of supplies and the reception and staging of reinforcements. Pipeline and railroad construction enhance the capacity of existing systems to move large tonnages of supplies forward. Air-base damage repair keeps airfields open to support both Army and Air Force missions. Moving into the corps rear area, roads and forward airstrips assume greater importance for tactical flexibility to sustain the fight, as does the hardening of support facilities against enemy attack. Thus, earthmoving and fixed bridging capabilities, already in high demand in the COMMZ, continue to increase in importance. Mine-clearing operations free up previously restricted areas and lessen the hazard to unit operations in the rear. Moving forward into the division area, engineers continuously emplace tactical bridging to expeditiously reopen damaged supply routes and to quickly replace assault bridging used in close combat.

The engineering challenge is immense and demands capable systems that are

available in sufficient numbers to meet the need. These systems are found in the engineer organizations spread from the COMMZ forward to the FLOT.

The theater engineer command orchestrates the sustainment engineering effort. Its subordinate brigade and group headquarters control a variety of engineer battalions, separate companies, and specialized detachments to support the COMMZ. The corps engineer brigade performs the same function for the corps rear and assists the division engineer battalions in carrying out sustainment engineering tasks in the division area.

RECEPTION AND PREPARATION OF REINFORCEMENTS

In all theaters there will exist a requirement to receive and prepare reinforcing units for further deployment and employment. This is particularly true in those areas in which forward deployed forces are stationed in peacetime. Normally reinforcing units will deploy personnel by air and equipment by sea. Once unit personnel and equipment arrive, they must be united and prepared for onward movement to their parent organizations. Typically, though not always, arrival sites are located in the COMMZ. Thus, the CSS requirements for supporting these operations normally are assigned to TAACOMs supported by MEDCOM and PERSCOM resources.

Upon arrival in theater, reinforcing units come under the operational command of the theater army commander. As the Army support commander in the theater, he is responsible for receiving, equipping, and assisting deploying units to achieve operational readiness. The reception and preparation tasks are normally carried out by

elements of the TAACOM assigned responsibility for the area in which APODs, SPODs, equipment storage sites, and marshaling areas are located.

TAACOM and TRANSCOM elements will be heavily involved in clearing PODs, transporting personnel and equipment to marshaling areas, and in matching unit personnel to their equipment. TAACOM units are responsible for the full range of logistics support to arriving units. They will normally coordinate for short-term billeting and feeding. They will also provide essential supplies and services and backup IDSM, recovery, and evacuation services. TRANSCOM elements assist with port clearance and transportation from POD to POMCUS or marshaling sites.

Medical elements providing area support assist with medical problems and may provide most medical support to the arriving units. PERSCOM elements assist with personnel service support and personnel accountability.

Reception of reinforcing units is complicated and demanding. Further complicating the problem is the fact that the TAACOM and its subordinate elements must simultaneously continue their chief mission of supporting the forward corps. FMs 54-40, 63-4, and 63-5 provide more details on this critical requirement.

NONCOMBATANT EVACUATION OPERATIONS

The requirement to evacuate noncombatants from an area of a theater or from the theater itself can arise in war or in low-intensity conflict. In several areas of the world the US has considerable numbers of forward deployed forces. They are often

accompanied by dependents. In even more areas, there are US government civilian employees and private citizens in large numbers. These personnel need to be evacuated before or as soon as hostilities commence.

Advance warning time of situations which may require NEO may be short. NEO will compete with force readiness activities for resources such as transportation and facilities. Therefore, NEO must figure prominently in all theater plans, particularly in transition-to-war plans. Only extensive, detailed planning and realistic rehearsals can minimize evacuation time.

CSS elements will play a large part in NEO. Both corps and TAACOM support

groups are likely candidates to provide essential supplies and shelter. Medical organizations operating on an area basis will provide medical support. Movement control resources, working in close coordination with support groups and transportation mode operators, will plan transportation and task operators to provide it. Host nation resources will be used to the maximum extent feasible. Military police will provide security within resources.

NEO is locale- and situation-dependent. Each theater makes its own plans. What is important is that the requirement is recognized, workable procedures are established and rehearsed, and the operation is executed as quickly and as humanely as possible.

Effective battlefield sustainment demands that the separate elements of the CSS system unite to perform required logistics and support functions at both the operational and tactical levels. Sound intelligence information is vital at both levels. Additionally, CSS forces must meet special support requirements to ensure that battle support is maintained. Weapon systems must be kept operational. Reconstitution actions must be supported, vital sustainment engineering tasks must be accomplished, and reinforcing units must be deployed and employed. Noncombatants may have to be evacuated. CSS elements must be prepared to support all these activities.



PART TWO

MANNING THE FORCE

Manning, arming, fueling, fixing, and moving the force are the CSS tasks. This part of the manual describes the all important subfunctions of manning the force. Those subfunctions are important from two viewpoints. First, they support the commander by preserving his fighting strength. Second, they contribute to the health, morale, and welfare of the individual soldier.

The three chapters in this part discuss health service support, personnel service support, and field services and supply as they support the commander and the individual soldier.

CHAPTER 3

Health Service Support

Health service support plays a fundamental role in developing and maintaining combat power. Sustaining the health of fighting forces is a critical factor in the success or failure of the Army. It is vitally important that AMEDD resource managers participate with combat commanders in the battle planning process from the beginning.

The medical system to support the US Army at war is a continuum from the FLOT through the CONUS base and serves as a primary source of trained replacements during the early stages of a major conflict. Beginning at the FLOT in all combat environments, the most effective, least expensive means of providing the combat commander with the maximum number of healthy vigorous soldiers is prevention. The prevention of illness and disease is accomplished through increased command emphasis, individual training, and sustainment training conducted by unit personnel.

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The medical system is designed to optimize the return to duty of the maximum number of trained combat soldiers at the lowest possible level. Accumulation of patients within the battle area impacts on treatment capabilities and can affect the success of the battle itself—becoming a potential “war stopper.” Here again, the importance of AMEDD participation in planning with combat commanders cannot

be overemphasized. Far-forward stabilization helps maintain the physiology of injured soldiers unlikely to return to duty and allows for their rapid evacuation from the battlefield without needless sacrifice of life or function.

HSS IN THE AIRLAND BATTLE

Planning must be proactive rather than reactive. Commanders must be able to reallocate medical resources as tactical situations change. Health service support units will be required to move rapidly to provide the required support needed to protect and sustain the force and to preserve the initiative.

In many cases, small units and task forces will operate independently. Units will frequently be cross-attached to react to the flow of the battle or to meet requirements for reconstitution. Personnel reconstitution of units operating forward is partially accomplished through maximizing the RTD rate of combat soldiers. Resources for the reconstitution of medical units, either partially or totally attrited through combat, normally come from the next higher level of HSS. Each level is designed under the modular medical system to reconstitute, within limitations, the next lower level. Cross-leveling of medical assets within the same command may also serve as a means of reconstitution and reinforcement.

Health service support personnel may be required, within their limitations, to *defend* themselves and the patients under their care. Due to the depth of the battlefield, HSS units in the rear area must be able to defend against enemy airborne and airmobile forces

and to survive NBC strikes while continuing to support the operation. Health service support must be included in rear operations and area damage control planning.

Mental flexibility and flexible organizations are required to provide HSS on the dynamic battlefield. Agility on the battlefield requires organizations and leaders who can act faster than the enemy.

Synchronization means more than coordinated action. It results from an all-prevailing unity of effort throughout the force. There can be no waste. The actions of each element within a command must flow from an understanding of the higher commander's concept and intent.

Due to the mass destruction and the disabling capabilities of modern conventional and NBC weapon systems, medical units can anticipate situations in which large numbers of patients are produced in a relatively short period of time. These mass casualty situations will probably exceed the capabilities of local medical units.

Key factors for effective mass casualty management are on-site triage and emergency care, effective communications, and skillful evacuation by ground and air resources. Medical units within the theater, while maintaining safe standards of care, must be prepared to alter the scope of medical treatment with the objective of providing the greatest good for the greatest number and maximizing return to duty.

Nonmedical personnel will have to perform first aid, rescue operations, and other tasks vital to the sufficient handling of large numbers of casualties. Mass casualty situations will require that all personnel unite their efforts to bridge the gap between casualties and medical capabilities. Nonmedical

personnel will have to perform patient decontamination, rescue operations, and other tasks vital to the efficient handling of large numbers of casualties. Effective self-aid, buddy aid, and combat lifesaver functions will be critical factors that will enhance the survivability of the wounded soldier. The human element—the soldier's training, courage, and leadership—will impact more heavily than any other single element in the AirLand Battle.

Knowledge, involvement, and emphasis at all levels of command are required to ensure that critical medical resources are managed properly and are available to provide care to the maximum number feasible. The following principles should be followed when planning for and supporting a mass casualty situation:

- Rapid reinforcement by mobile medical treatment squads and surgical teams or squads.

- Rapid reinforcement of medical supplies.
- Rapid replenishment of patient evacuation resources.

The successful execution of the AirLand Battle offers significant challenges to the commander and the planner. As the battlefield becomes increasingly incapacitating, sustaining the health of the fighting forces becomes a critical factor in the success or failure of friendly forces. Proper planning enhances the capability of medical units to provide effective health service support and ultimately increases the chances for survival of the soldier on the battlefield.

Forward support characterizes the role that health service support must assume. The thrust of HSS is to maximize the RTD rate in order to conserve the human component of the combat commander's weapon systems.

LEVELS OF HEALTH SERVICES

Health service support within a theater of operations is organized into levels which extend rearward throughout the theater. Each level is designed to meet the needs of the operational environment and play a specific part in the progressive (phased) treatment, hospitalization, and evacuation of the sick, injured, or wounded soldier. Each higher level of support contains the same treatment capabilities as lower levels plus a new level (echelon) of treatment which sets it apart from the lower level of support. "Echelon" of care is a NATO term which can be used

interchangeably with the term "level." See Figure 3-1.

The objective of health services is to conserve trained manpower. The tailored and phased HSS system will ensure the early RTD of patients as far forward as possible. Medical resources will be employed to provide the utmost benefit to the maximum number of personnel in the area of operations.

Each command level has the same capability as the lower commands. For example, in the COMMZ, all four levels of

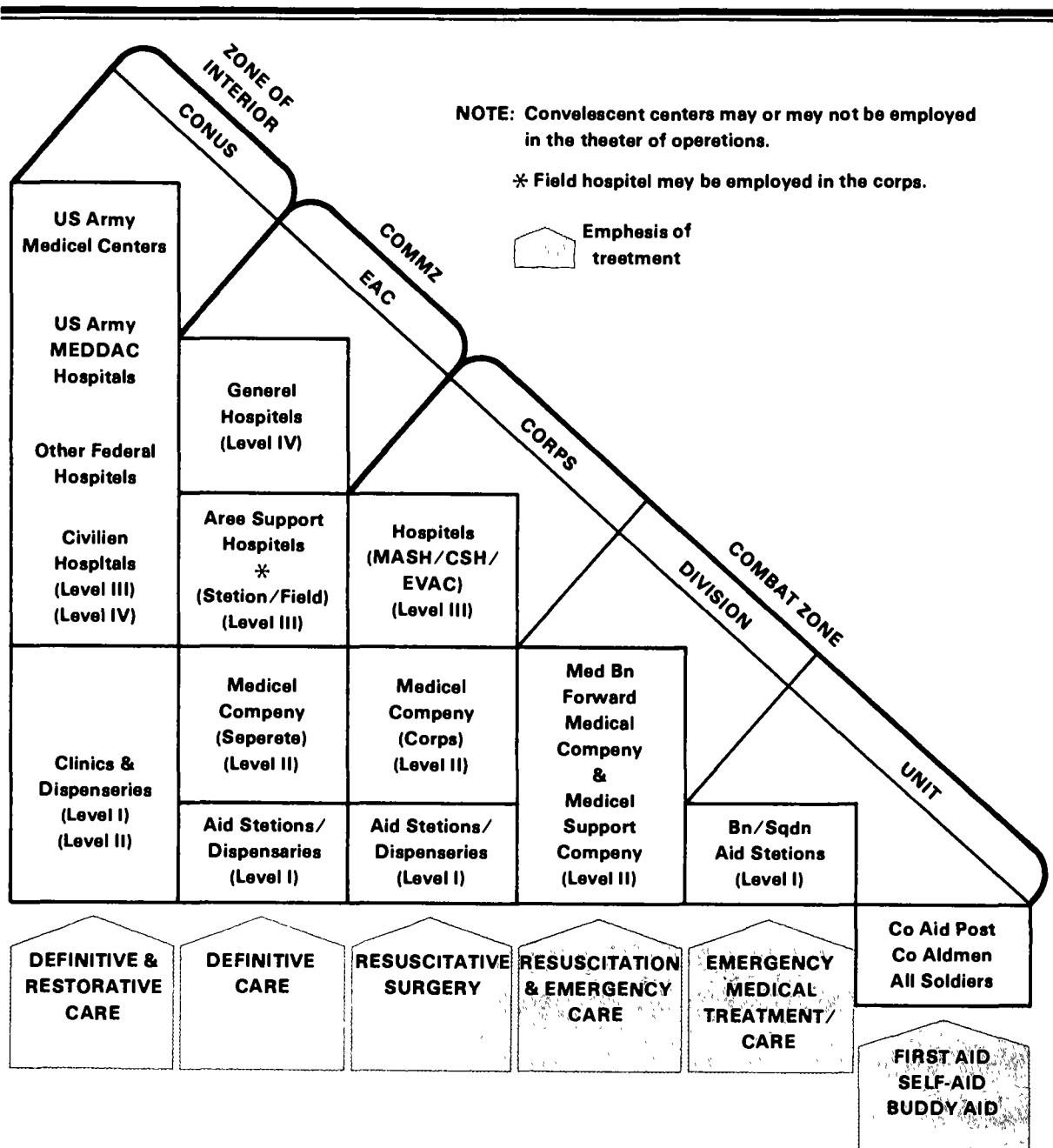


Figure 3-1. Levels of Health Service Support.

health service support are provided. The following levels of health care will have direct impact on patients from the FLOT to the COMMZ as they are treated and/or evacuated.

LEVEL I

Medical support and treatment are provided by designated individuals or elements organic to combat, combat support, and designated medical units. Major emphasis is placed on those measures (maintain airway, stop bleeding, prevent shock) necessary to stabilize and allow for the evacuation of the patient to the next level of care. Unit-level medical support also includes medical evacuation from supported units to supporting medical treatment.

Individual

This immediate far-forward care consists of those lifesaving steps that do not require the knowledge and skill of a physician. Three different skill levels of personnel provide the care required in the forward area and form a major source of returned-to-duty individuals.

Self-Aid, Buddy Aid

Each soldier is trained to be proficient in a variety of specific first aid procedures, to include aid for chemical casualties, with particular emphasis on lifesaving tasks. This training enables the soldier or a buddy to apply immediate care to alleviate a life-threatening situation.

Combat Lifesaver

The unit commander selects nonmedical unit members to receive additional training to increase medical skills beyond basic first aid procedures. After training, these personnel are called combat lifesavers. At least

one person per squad, crew, team, or equivalent-sized unit is trained.

All combat units, as well as some combat support and combat service support units, have combat lifesavers. The primary duty of the combat lifesaver does not change. The additional duty of combat lifesaver is performed when the situation permits.

Combat Medic

This is the first individual in the health service support chain who makes medically substantiated decisions based on medical MOS-specific training.

Treatment Squad (Aid Station)

This element is trained and equipped to provide physician-directed advanced trauma life support to battlefield casualties and routine sick call when not engaged in combat. Like elements provide this level of care in division, corps, and COMMZ units.

LEVEL II

Level II care is rendered at the clearing station (division or corps). Here the casualty is examined. His wounds and general status are evaluated to determine his priority, as a single casualty among other casualties, for continued evacuation to the rear. Emergency care, including beginning resuscitation, is continued; and, if necessary, additional emergency measures are instituted. However, they do not go beyond the measures dictated by the immediate treatment.

These functions are performed typically by company-sized medical units at brigades, in divisions, and by similar units in the corps and COMMZ. These Level II units are located in the combat zone (brigade support area), division support area, corps support area, and the COMMZ. Initial surgical capability

is organic to airborne and air assault divisions. Other divisions (light, motorized, mechanized, and armored) are augmented with this capability as required.

LEVEL III

In Level III care, the casualty is treated in a medical facility staffed and equipped to provide resuscitation, initial wound surgery, and postoperative treatment. Casualties whose wounds are life-threatening receive surgical care in a hospital close to the clearing station. Those whose injuries permit additional transportation without detriment receive surgical care in a hospital farther to the rear.

LEVEL IV

In Level IV medical care, the casualty is treated in a hospital staffed and equipped for general and specialized medical and surgical care and reconditioning rehabilitation for return to duty.

CONUS-BASED SUPPORT

Further health service support is found in the hospitals of the CONUS base. Mobilization requires expansion of military hospital capacities and the inclusion of Veterans Administration and civilian hospital beds in order to meet the increased demands created by evacuation of patients from the theater of operations.

PATIENT CARE AND MOVEMENT

Patients with wounds of lesser severity may not need to be passed through all levels and are returned to duty at the lowest level that meets the needs of the patient. Condition of the patient, threat, time, distance, and terrain obstacles are important factors to be considered when selecting the mode of evacuation.

Optimization is best gained through centralized management and matching the patient's condition and urgency of movement with the mode of transport. In the division area, Level I and II treatment facilities will not be bypassed unless the patient has been treated at a medical treatment facility and stabilized for flight; for example, Level II in the BSA and DSA. This also provides the opportunity to further refine and designate the mode of transportation that will be used for further evacuation to the rear.

It is important to remember that there are logistics problems in the care of all battle casualties. Military medical facilities must always be in a state of readiness to move according to the dictates of the tactical situation. However, this necessity in no way lessens the responsibility for providing for the medical care and disposition of casualties.

Despite the exceedingly unfavorable circumstances of war, movement of casualties from one level to the level in the forward area usually is accomplished within a matter of hours. Distances vary with the local tactical situation, but, generally speaking, casualties travel a distance of many miles between the battlefield and a hospital.

Modern concepts of increased mobility for all fighting units, as well as the vulnerability of even remote areas to aerial or missile

attacks, require that all medical units, wherever they are located and regardless of their primary mission, must be prepared to receive and treat casualties as circumstances

require. In modern warfare, the battlefield is likely to be highly fluid. Medical personnel must be prepared to adjust to urgent needs as they arise.

ORGANIZATIONS AND FUNCTIONS

There are numerous medical treatment units operating at the various levels which are part of the Army treatment and evacuation system. In the theater of operations, hospitals and units are numbered, designed, organized, staffed, and equipped according to regularly established TOEs which prescribe the mission, organizational structure, and personnel and equipment authorizations. Federal and civilian hospitals in the CONUS are the final medical facilities in the system. At any point in the treatment and evacuation system, a patient is returned to duty whenever possible.

MODULAR MEDICAL SUPPORT (LEVELS I AND II)

Level I and II health service support is provided by a modular support system that standardizes all medical subunits within the division. The modular design enables the medical resource manager to rapidly tailor, augment, reinforce, or reconstitute the battlefield in areas of most critical need. This system is designed to acquire, receive, and sort casualties and to provide emergency medical treatment and ATLS for personnel in divisions.

Medical support originates in the forward areas with the combat medic supporting each combat platoon or company team. From this

point, the patient is evacuated to the battalion medical platoon or section treatment squad (battalion aid station) and then to the medical company treatment platoon (division-level clearing station).

The modular medical support system is built around six modules. They are oriented to forward casualty assessment, collection, evacuation, treatment, and initial emergency surgery. When effectively employed, they provide greater flexibility, mobility, and patient care capabilities than have been available previously.

Combat Medic Module

The combat medic module consists of one combat medical specialist and his prescribed load of medical supplies and equipment. The combat medic is organic to the medical platoon or section of the combat or combat support battalion and is attached to platoons or companies of the battalion.

Treatment Squad Module

This module consists of a primary care physician, a physician's assistant, and six medical specialists. The squad is trained and equipped to provide ATLS to the battlefield casualty. ATLS is emergency care designed to resuscitate and stabilize the patient for evacuation to the next level of medical care or treat and return the patient to duty.

To maintain contact with the combat maneuver elements, each squad has two emergency treatment vehicles. Each squad can split into two treatment teams. These squads are organic to medical platoons or sections in maneuver battalions and designated combat support units and medical companies of divisions and separate brigades. They may be employed anywhere on the battlefield.

Area Support Squad Module

This module is comprised of one dentist trained in ATLS, a dental specialist, an X-ray specialist, and a medical laboratory specialist. The squad is organic to the medical companies of separate brigades and divisions.

Patient Holding Squad Module

This module consists of two practical nurses and two medical specialists. It is capable of holding and providing minimal care for up to 40 patients who will be returned to duty. This squad is organic to the medical companies of divisions and separate brigades.

Medical Detachment (Surgical Squad) Module

This module is composed of a general surgeon and an orthopedic surgeon, two nurse anesthetists, two operating room specialists, one medical or surgical nurse, and two practical nurses. It is organized to provide initial surgery for seriously wounded or injured casualties, to save life, and to preserve physical function.

Initial surgery will be performed whenever a likely delay in the evacuation of a casualty threatens life or the quality of recovery. Post-surgical patients awaiting evacuation will be held by the patient

holding squad with which the surgical module will colocate, with intensive nursing care provided by the nurses of the surgical module.

Surgical squads are organic to the medical battalion of the airborne and air assault divisions. Surgical squads will normally be employed in the DSA but may be employed in the BSA during brigade task force operations.

Ambulance Squad Module

An ambulance squad module is comprised of four medical specialists and two ambulances. The squad provides evacuation of casualties throughout the division and ensures continuity of care en route. Ambulance squads are organic to the medical platoon or section in maneuver battalions, to selected combat support units, and to medical companies of the division support command.

Medical company ambulance squads will be located in the BSA and DSA. They provide area support to assigned division sectors. The maneuver battalion medical platoon's ambulance squads are located with the treatment squad (BAS) and further attached to the companies of the maneuver battalions.

PATIENT EVACUATION

Patient evacuation is the timely, efficient movement and en route care of wounded, injured, or ill persons from the battlefield and other locations to medical treatment facilities. It is the responsibility of the gaining level to evacuate from the lower level of medical support. Evacuation begins at the location where the injury or illness occurs and continues as far rearward as the patient's medical condition dictates or the military situation requires.

The theater evacuation policy is established by the Secretary of Defense with the advice of the Joint Chiefs of Staff and upon the recommendation of the theater commander. The policy establishes, in number of days, the maximum period of noneffectiveness (hospitalization or convalescence) that patients may be held within the theater for treatment.

This policy does not mean that a patient will be held in the theater for the entire period of noneffectiveness. A patient who is not expected to be ready for return to duty within the number of days established in the theater evacuation policy is evacuated to CONUS or some other safe area. This is done as soon as treating physicians determine that such evacuation will not aggravate the patient's disabilities or medical condition. This policy is not a substitute for clinical judgment in the management of individual patients.

Subordinate commands may establish intratheater patient evacuation policies within the limits of the theater patient evacuation policy and subject to approval by the theater commander. For example, a short evacuation policy is established for corps hospitals to maintain their mobility and their capability to accommodate surges of patients.

The intratheater evacuation policy, usually stated in days at the corps level, represents the maximum period of allowable hospitalization in corps hospitals. Intratheater evacuation policies may differ among hospitals depending on their location, facilities, staff, and the types of patients received.

Air Ambulance Medical Company

The mission of the air ambulance medical company is to provide aeromedical evacuation

of patients within the theater of operations. Additionally, this company provides emergency movement of medical personnel, equipment, supplies, and blood products. It is assigned to the evacuation battalion for command and control. It is tactically located where it can best control its assets and execute its aeromedical evacuation mission.

The company is organized into a company headquarters, a flight operations platoon, an aircraft maintenance platoon, and an air ambulance platoon with a total of 15 aircraft. This company provides aeromedical evacuation of all categories of patients, consistent with evacuation priorities and other operational considerations.

Evacuation is effected from as far forward as the tactical situation permits to division medical treatment facilities, from division MTFs to and between corps-level hospitals, and from Level I and II MTFs in the corps support area to hospitals.

Ground Ambulance Medical Company

The mission of the ground ambulance medical company is to provide ground evacuation of patients within the theater of operations. It is assigned to the evacuation battalion for command and control and is tactically located where it can best control its assets and execute its patient evacuation mission.

This company is organized into a company headquarters section and four ambulance platoons. Each ambulance platoon consists of a platoon headquarters and five ambulance squads of two ambulances each. The ground ambulance medical company serves as one of the primary means of evacuating patients from the division and from MTFs within the corps and COMMZ.

MEDICAL REGULATING

Medical regulating is the coordinated movement of patients to MTFs which are best able to provide timely and required care. This system is designed to ensure the efficient and safe movement of patients, often over great distances, in such a manner that the welfare of the patient is second only to the success of the tactical mission. Rigid control is maintained on the evacuation of patients to prevent surgical backlogs and ensure even distribution of patients in all hospital facilities.

Automated information systems provide rapid assessment and visibility of all intratheater hospital beds and designate the appropriate facility to be used. Intratheater evacuation from corps to COMMZ is transmitted to the Joint Medical Regulating Office of the unified command headquarters, thereby using hospital capabilities of all services to the maximum.

Intratheater patient movement from corps-level hospitals to COMMZ-level hospitals or to hospitals of other services is normally accomplished by the US Air Force. Intertheater regulating and evacuation are coordinated by the JMRO with the Armed Services Medical Regulating Office for designation of sustaining base hospital beds.

HOSPITALIZATION

Currently, the three hospital units in the corps are the mobile army surgical hospital, the combat support hospital, and the evacuation hospital. All hospitals provide initial surgical care and medical treatment. The CSH and evacuation hospitals also provide definitive medical treatment. The basic difference in the care which these hospitals provide as opposed to division-level medical care is the scope of the surgical and medical care provided.

The main medical treatment facilities in the COMMZ are the general hospital, the station hospital, and the field hospital. The general hospital provides definitive treatment and receives patients from the combat zone and COMMZ medical facilities who are not evacuated directly to CONUS or to a convalescent center. The station hospital provides hospitalization on an area basis to relatively stable troop concentrations in the COMMZ. The field hospital provides hospitalization on an area basis for temporary troop concentrations, prisoners of war, and civilian internees.

Short-distance movement of patients (from MTF to MTF) within the COMMZ is accomplished by buses and ground and air ambulances. Long-distance movement of patients within the COMMZ and movement of patients from the COMMZ to CONUS is accomplished by using the US Air Force aeromedical evacuation system.

COMBAT STRESS CONTROL

Sustained operations, weapons of awesome mass destruction, and the potential for forces to become intermingled in high-intensity conflict make temporary battle fatigue casualties inevitable. In low-intensity conflict, the guerrilla threat counts on psychological stress to disable the defender.

Mental health sections organic to divisions function integrally with other Level II treatment, command, and control elements. Combat stress control elements provide assistance to units which are withdrawn temporarily from combat for reconstitution.

Neuropsychiatric triage and treatment of battle fatigue casualties will take place as far forward as the operational situation permits.

Management and treatment of battle fatigue casualties consist of—

- Rest.
- Reassurance.
- Brief behavioral, pharmacologic, and psychotherapeutic treatment.
- Military activities in a nonpatient care setting.
- A positive expectation of a rapid return-to-duty rate.

PREVENTIVE MEDICINE SERVICES

The prevention of illness and disease is the most effective, least expensive means of providing the combat commander with the maximum number of healthy, vigorous soldiers. Preventive medicine support for combat operations must be considered as a wholly integrated system from the individual soldier through the theater level to be effective and minimize disease and environmental injury among combat forces. To assist in this effort, small mobile preventive medicine detachments are assigned area support missions within the combat zone or COMMZ.

Additional detachments are assigned for the preventive medicine support of special needs, such as enemy prisoner of war camps and refugee relocation centers. These detachments provide advice and assistance in the areas of sanitation, as well as other preventive medicine measures to protect personnel against food-, water-, and vector-borne diseases and other environmental injuries (heat and cold injuries). Selected detachments are staffed and equipped to provide additional entomological control capabilities.

DENTAL SERVICES

Dental services are provided to enhance the combat readiness of troops in a theater of operations by maintaining their oral health. Providing dental services as far forward as feasible minimizes the amount of time a soldier is away from his primary duties. To maximize efficiency, mobility, and flexibility, dental support in a theater of operations employs high-technology equipment and is structured in the modular configuration.

Dental service in a theater of operations is divided into three categories of care: emergency, sustaining, and maintaining. Only those services that are mission-essential are provided at each level.

- Emergency care is intended to relieve pain. Examples are the use of medications and simple procedures such as temporary fillings.
- Sustaining care is designed to provide the level of treatment necessary to keep the soldier functioning in the division area. It consists of procedures such as simple restorations and denture repairs.
- Maintaining care is more involved and more resource dependent. This category consists of definitive dental care including routine dental procedures, prosthodontic appliances (dentures), oral surgical procedures, and a preventive dentistry program.

A fourth category of elective and highly specialized care, to include maxillofacial reconstructive surgery and other complex dental services, is normally accomplished by facilities in CONUS. This category of care, termed "comprehensive care," is essential to the overall health, morale, and combat strength of the US Army, but does not have to be performed in a theater of operations except

in certain emergency life-threatening situations.

VETERINARY SERVICES

The US Army is the Department of Defense executive agent for providing veterinary support to all services and other DOD and federal agencies worldwide. These services include—

- Inspection of foods for wholesomeness and quality assurance.
- Sanitary inspection of those facilities supplying foods to DOD components.
- Comprehensive veterinary medical care for government-owned animals.
- Prevention and control of those animal diseases communicable to man.

These services are in direct support of logistics subsistence organizations, military police units, or civic action programs. Veterinary units afford the needed flexibility to meet such broad-based requirements. Other veterinary service personnel in support of battlefield operations may be assigned to civil affairs units, area medical laboratories, and units employing military working dogs.

LABORATORY SERVICES

Medical laboratory assets provide procedures that support rapid return to duty or evacuation efforts. Procedures that are time and labor intensive, plus those procedures that are not compatible with the theater of operations evacuation policy, are not found on the battlefield. They are replaced with rapid, field-expedient techniques that can be accomplished with lightweight and readily transportable equipment.

Division-level laboratory support is a responsibility of the treatment platoon of a

medical company. A medical laboratory specialist in the area support squad (division clearing station) performs procedures in direct support of ATLS activities. These procedures provide limited laboratory data.

Laboratory assets are standardized for all corps and COMMZ hospitals. Limited procedures are performed in biochemistry, hematology, and urinalysis. Sophisticated and time-consuming procedures are reduced to those tests that can be conducted and evaluated during a patient's stay.

At echelons above corps, laboratory support found in the general hospital is similar to that of hospitals at corps level. Also located at EAC is a theater area medical laboratory that supports the theater of operations with consultative, investigative, and specialized definitive services. These capabilities require highly skilled personnel, sophisticated equipment, and a larger amount of supplies. The theater area medical laboratory also has the capability to analyze samples from any source for identification of biological warfare agents. It also provides analyses of samples from patients to assist treatment of chemical agent effects. It provides analyses of food and water samples and animal specimens to assist veterinary and preventive medicine personnel in identification and assessment of NBC agents.

HEALTH SERVICE LOGISTICS

Medical logistics support includes—

- Class VIII supplies.
- Biomedical maintenance.
- Optical fabrication.
- Blood processing, storage, and distribution.

There are medical logistics activities at division, corps, and COMMZ levels. The division medical supply office provides Class VIII supply management and biomedical maintenance support to the division. Resupply to the division is provided by a corps MEDSOM battalion. This unit also has

an area support mission to resupply corps hospitals and other medical elements operating in the corps sector. It is also the blood management office for the corps. In the mature theater, COMMZ-level medical logistics is also provided by the MEDSOM battalion.

MEDICAL RESOURCE MANAGERS

Overall planning, determining requirements, and coordinating health service support for the division are staff responsibilities of the division surgeon. He is the single medical resource manager of the division.

At corps level, the COSCOM surgeon (medical brigade commander) is the single medical resource manager. He has the overall responsibility for planning, determining requirements, and coordinating health service support for the corps.

The theater surgeon is overall medical resource manager for the theater. He advises the theater army commander in developing health service logistics plans, recommending policies, and establishing priorities. He plans and supervises technical inspections of the medical system. He determines theater requirements for medical equipment and supplies and exercises staff supervision over the requisition, procurement, storage, maintenance, distribution, and documentation of these supplies and equipment.

Sustaining the health of fighting forces is critical to success on the AirLand Battlefield. To this end, the health service support system is designed to provide the utmost benefit to soldiers in the area of operations. Preventive medicine support, medical regulating, and patient care and movement are all necessary functions required to return to duty the maximum number of trained combat soldiers.



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CHAPTER 4

Personnel Service Support

Personnel service support is a major element in the task of manning the force. It is one of the major categories of CSS discussed in this manual. PSS includes the following major functional areas:

- Personnel and administration services.
- Finance services.
- Chaplain activities.
- Public affairs.
- Legal service support.

Personnel service support is provided by MTOE units and by embedded elements on the battlefield. The personnel and

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administration center and unit ministry team at battalion level are examples of embedded elements. PSS elements provide a wide range of support to commanders and soldiers. Table 4-1 shows some examples of this dual focus of PSS support.

Table 4-1. PSS Support

MAJOR FUNCTION	COMMAND SUPPORT	SOLDIER SUPPORT
P&A Services	Casualty Management Replacement Operations Enlisted Accessions Officer Procurement Official Mail Strength Accounting	Enlisted Evaluations Officer Evaluations Enlisted Promotions Officer Promotions Personnel Mail Awards and Decorations
Finance Services	Commercial Accounts	Military Pay
Chaplain Activities	Chaplain's Advice UMT Management	Pastoral Counseling Administering Sacraments Conduct of Worship Services Battle Fatigue Treatment
Public Affairs	Command/Public Information	Hometown News Release
Legal Service Support	Contract Law	Legal Assistance

PERSONNEL AND ADMINISTRATION SERVICES

A personnel group is assigned to each corps and TAACOM. It provides services through subordinate units which include personnel service companies, replacement companies, and postal platoons.

STRENGTH MANAGEMENT

Strength management is accounting for the force on the basis of rapidly reported numerical strength information. Commanders depend on this information to fight present, and plan future, battles. Strength management includes—

- Collecting, consolidating, analyzing, and reporting the information.
- Assessing combat capabilities.
- Establishing replacement priorities.
- Allocating replacements.
- Reporting combat power of crews and teams.

Strength management data is collected as quickly and accurately as possible to enhance the tactical decision-making process. It is the commander's "troops available" part of the METT-T formula. Strength management enables commanders to determine their capabilities from a personnel viewpoint. Commanders can identify units which are at acceptable strength levels overall, but which are not operationally effective because of shortages of key personnel. Strength management data is also used as the basis of issue for rations and other supplies.

On the battlefield, units will use the Command and Control Strength Reporting System to provide commanders with the most current strength management information. This system allows commanders to view the strength status of subordinate units.

The C2SRS reports provide commanders at all levels with information on unit strength, shortages, and requirements and assist him in assessing the combat capability of his own and his subordinate units. These reports are the—

- **Battle roster.** The battle roster is the basic driver of the C2SRS.
- **Personnel summary.** The personnel summary is a "snapshot" of a unit's personnel strength. It breaks down the unit's current operating strength by officer, warrant, and enlisted personnel.
- **Personnel requirements report.** The PRR lists a unit's personnel/replacement requirements by grade and MOS/SSI, based on comparison of required versus assigned strength.
- **Command and control task force personnel summary.** This report provides C2SRS information on soldiers that are part of a task force.

Strength management on the battlefield is a major category of work for commanders and P&A elements of all echelons. Strength management reports interface with replacement operations, casualty operations, promotions, postal operations, accessions, weapon system replacement operations, and reconstitution.

The strength management system is oriented toward the battlefield, military personnel, and TOE units. It is used to account for civilian, other service, and non-US (allied and local national) personnel in situations where they are part of reporting organizations.

Figure 4-1 depicts the flow of strength management data within a division force. The flow is similar for a nondivision element.

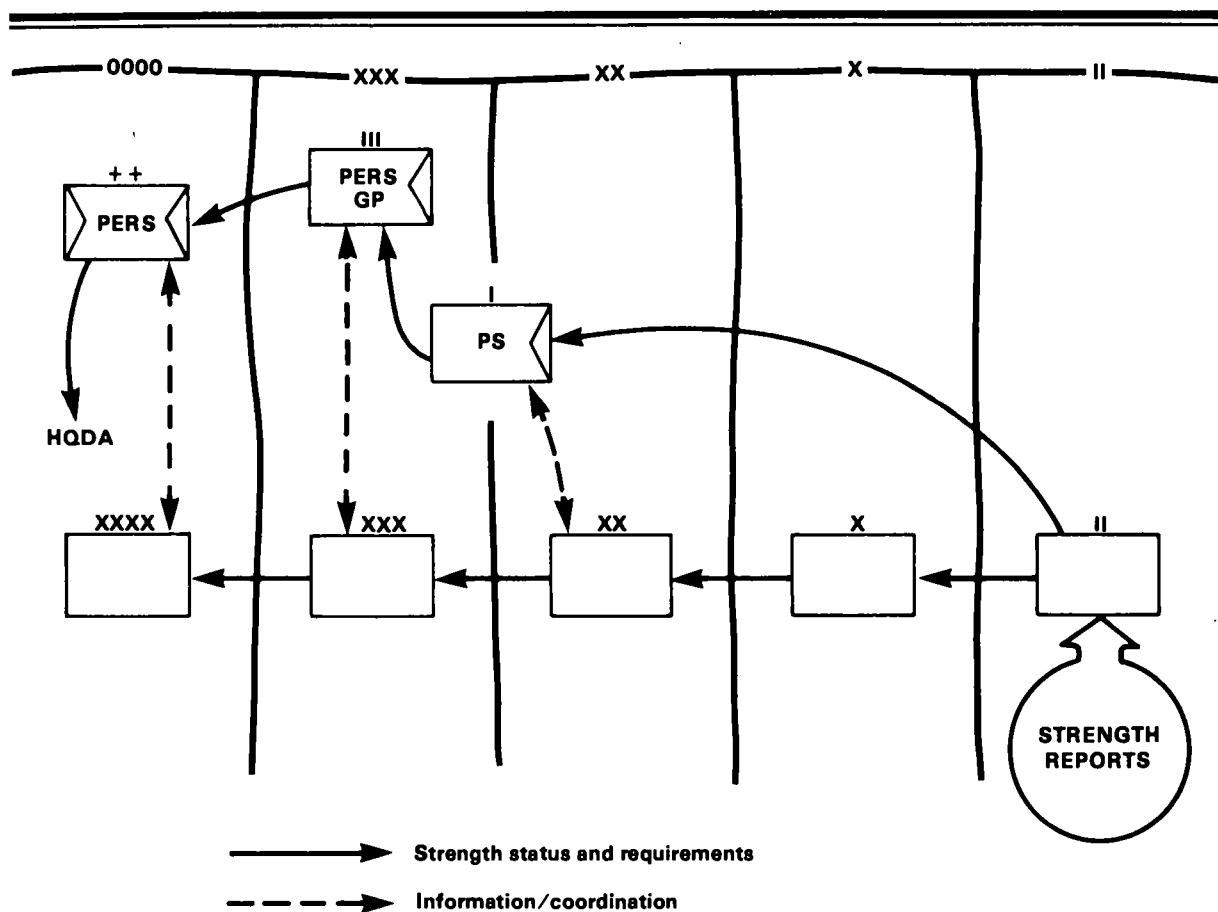


Figure 4-1. Strength Management Data Flow

REPLACEMENT OPERATIONS

The wartime personnel replacement system provides personnel replacements to sustain the combat capability of US Army forces. Personnel replacements include individuals and small units with leaders. These small units are cohesive squads, crews, teams, and platoons. The unit replacement capability takes advantage of the combat

multiplier effect through the use of cohesive small unit replacements. The goal of the replacement system is to provide personnel replacements as far forward as the battlefield situation permits.

Although not always possible, gaining units should ensure that replacements are

trained and acclimated to their new units before going into combat. Ideally they should be assigned when the unit is in reserve, certainly when it is not engaged. As a minimum, new replacements should become familiar with the mission; the situation; their new officers, NCOs, and fellow soldiers; the unit's traditions; and the unit SOP.

In World War II, the Army experienced serious problems in its replacement system. Replacements were not properly prepared for combat and, in many instances, were not thoroughly trained or indoctrinated in the unit's traditions. In Normandy, the commander of the beleaguered 4th Division refused to accept 400 replacements because they lacked proper infantry skills or were not thoroughly trained. At Schmidt the 112th Infantry Regiment, which had suffered more casualties (1,549) than any other regiment participating in the fighting, refused 250 replacements for similar reasons.

The US Army Training and Doctrine Command operates the CONUS replacement system. CONUS replacement centers coordinate the movement of ready-to-fight soldiers to the theater of operations. CRCs operate a staging facility to process individual and unit replacements. CRCs verify preparation of replacements for overseas movement qualifications and coordinate with the host installation for issue of individual clothing, organizational clothing and individual equipment, individual weapons, and chemical protective masks and clothing.

The theater army personnel command operates the OCONUS replacement system. PERSCOM maintains theater army strength data, prepares loss estimates, identifies critical shortages by grade and MOS, prepares shelf requisitions to support operations of the

push package replacement system, and projects transportation requirements for movement of replacements. If there is no PERSCOM in the theater, elements from the personnel group operate the theater replacement system.

The PERSCOM provides command and control of replacement battalions. The replacement battalion commands and controls organic general support replacement companies and manages the inventory of replacements moving through its replacement channels. The replacement battalion—

- Coordinates transportation of replacements moving from the APOD to the corps replacement company, division replacement section, or theater units.
- Positions assigned replacement companies near APODs.
- Coordinates with medical facilities.

The replacement company receives incoming replacements, provides temporary billeting service and personnel accounting of replacements, and coordinates transportation of replacements to their assigned units. Replacement companies at EAC perform both GS and DS roles. The replacement company coordinates transportation of replacements to assigned theater units, to the corps replacement company, or to the division replacement section. See Figure 4-2. The replacement company maintains liaison with supporting hospitals to ensure that return-to-duty soldiers quickly return to their original units when possible. It also coordinates with the appropriate corps or TAACOM supply activity to provide individual clothing, weapons, and equipment for return-to-duty soldiers.

The division replacement section receives,

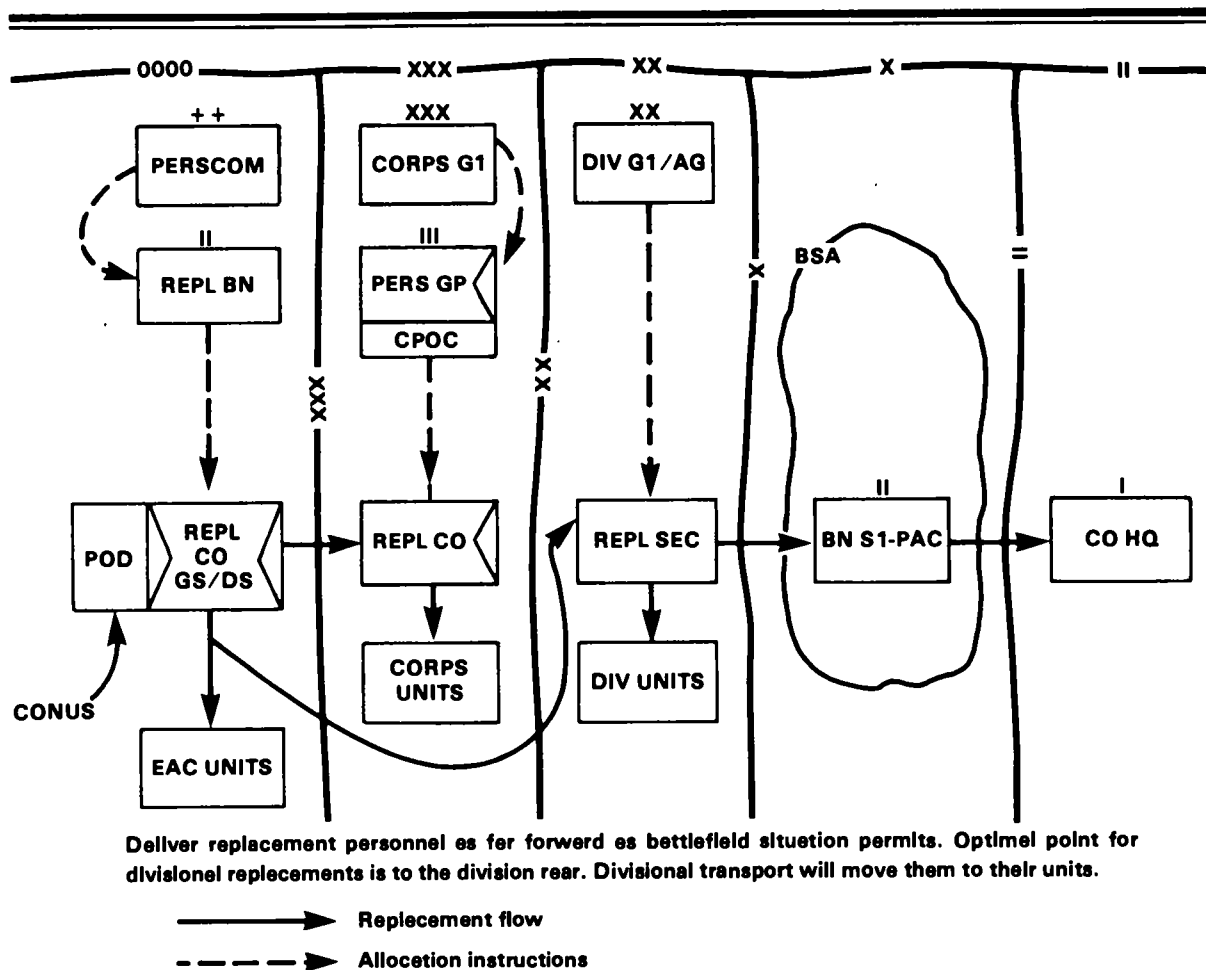


Figure 4-2. Personnel/Replacement Flow

controls, and coordinates transportation of replacements received from the theater replacement company to their ultimate assigned units. The replacement section maintains liaison with supporting corps hospitals to ensure that return-to-duty soldiers return to their original units when possible. The replacement section coordinates with the DISCOM to reequip RTD soldiers.

The delivery of replacements often must be synchronized with the delivery of equipment and major weapon systems. Replacement operations are a critical factor in the reconstitution effort. WSRO supports intensified management of crew members and major weapons. WSRO provides weapon systems to combat forces at battalion level in ready-to-fight condition.

CASUALTY OPERATIONS

Commanders will account for, report, and record all casualties. The casualty operations system is a by-name personnel accounting system that begins at unit level with the person who has knowledge of a casualty. Casualty reports provide essential information to the casualty estimation process which assists commanders in planning and adjusting future operations. Casualty operations include—

- Reporting and recording casualties.
- Reconciling multiple sources of data concerning the status of soldiers.
- Managing casualty case files at all echelons from battalion to HQDA for missing and evacuated soldiers.
- Conducting liaison with medical, law enforcement, intelligence, and graves registration activities.
- Analyzing actual casualty data in comparison with casualty projections.
- Providing updates to the postal locator.

Casualty operations require 100-percent personnel accounting reconciliation. This accuracy requirement makes casualty management the most precise P&A work category. It has an importance and urgency not inherent in other P&A tasks. Casualty operations have far-reaching effects on the morale of military and civilian populations, the Army's image, and other P&A work categories.

Although the management of casualty reporting is a P&A function, coordination among the entire casualty and memorial affairs network is critical to the overall success of the system. Logistics, medical, and other agencies must coordinate closely con-

cerning disposition of remains, personal effects and military equipment, and the current status of all casualties. On the battlefield, high casualty rates should be expected. All echelons must be prepared to rapidly report and process casualty information. Casualty data flow for a division force is at Figure 4-3.

POSTAL OPERATIONS

The personnel system will operate a postal network on the battlefield to deliver official and personal mail. The postal delivery network will connect command and control headquarters and the postal units with daily delivery service. Official mail will be the PSS primary data transmission backup link within the theater of operations and from the theater to CONUS. Personal mail is distributed through a postal unit to a network of unit mail clerks. Mail is delivered to committed units through the LOGPAC. Postal units will maintain contact with appropriate personnel organizations to ensure that personal mail redirect services are accomplished based on the best available information.

PROMOTIONS AND REDUCTIONS

The promotion process exists to support the needs of the Army by achieving the following general objectives:

- Fill authorized spaces with qualified soldiers (select the best to lead).
- Recognize and reward the highest caliber of soldier.
- Identify substandard soldiers and take appropriate actions.

Promotion processes must be administered in a manner to meet the objectives stated above. Decentralized promotions are

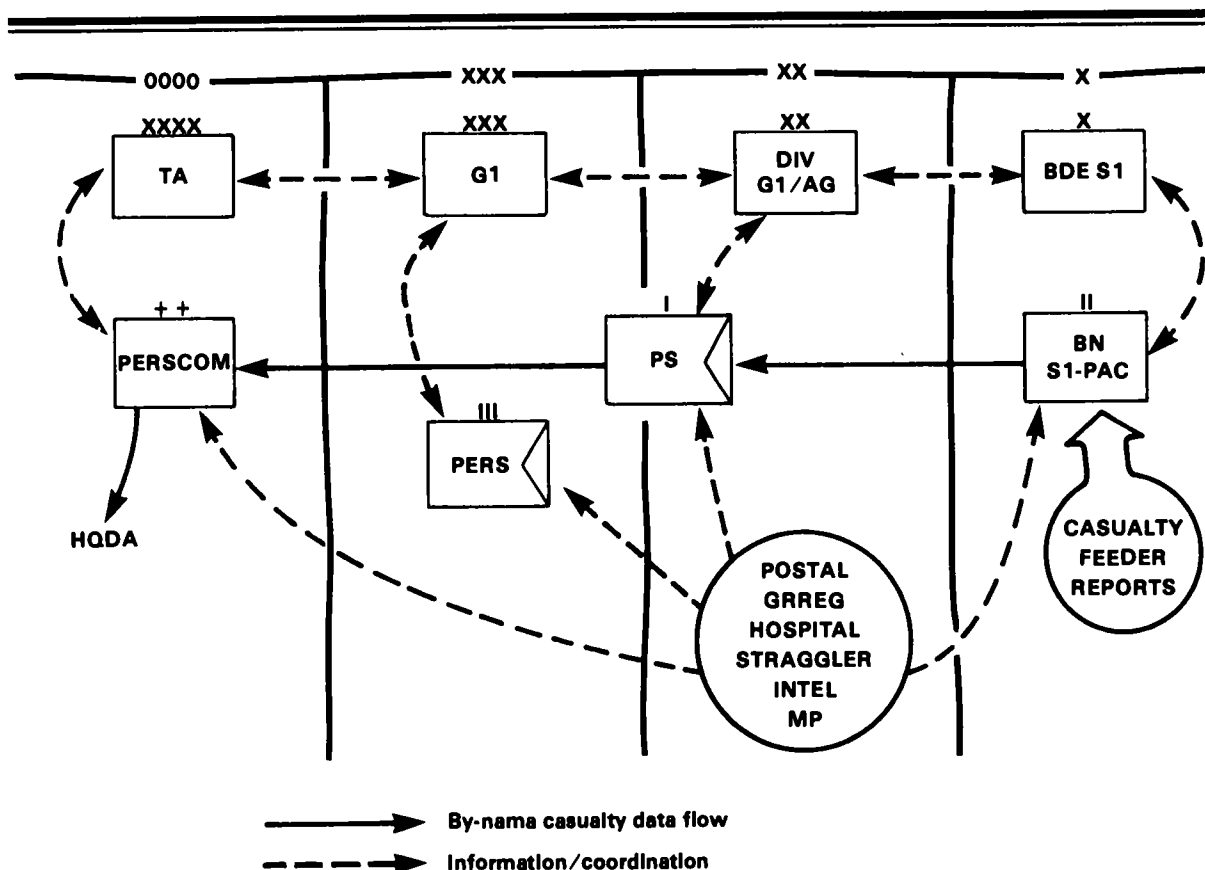


Figure 4-3. Casualty Management Data Flow

made on the battlefield by the commander having promotion authority. Reduction serves as an important means of maintaining discipline and the quality of the force. Promotions and reductions have a direct impact on strength management in wartime. Therefore, close coordination must be maintained between these interrelated functions.

AWARDS

The awards program is intended to recognize soldiers' valor and achievement and to

record that recognition for historical purposes. This program provides tangible and prompt recognition for acts of valor, exceptional service or achievement, special skills or qualifications, and acts of heroism not involving actual combat. Beyond recognition, awards should provide incentives to perform military missions under difficult or dangerous conditions and to foster pride, morale, esprit de corps, unit identification, and a sense of commonality with the goals and interests of the Army and the nation.

Administrative procedures are important only as they contribute to the program's purposes and record information for future reference. Handwritten recommendations will be the norm below division level. Awards affect not only the recipients, but every soldier having knowledge of the act, service, achievement, or award.

OFFICER ACCESSIONS

Commanders will appoint enlisted soldiers as commissioned officers or warrant officers on the battlefield. Battlefield officer accessions exist to support the needs of the Army. Like promotions or eliminations, officer accessions are an important element in ensuring the strength, readiness, and competence of the officer corps. Only enlisted soldiers fully qualified to serve as officers will be appointed.

EVALUATIONS

The performance of soldiers on the battlefield will be evaluated and recorded. The evaluation is used in conjunction with other factors as a basis for such actions as promotion, school selection, assignment, specialty designation, and elimination. Evaluations must be accurate and provide complete descriptions of a soldier's duty performance, professionalism, and potential.

RECORDING INFORMATION

The P&A system will record information to support personnel management and for historical purposes. The goal of a paperless battlefield does not preclude personnel records. The goal is to use only electronic records where practical. Paper records within the Military Personnel Records Jacket will be limited to those on which a signature is an absolute requirement (for example, contracts and evaluations).

Paper records will not be taken by units deploying for sustained operations, but will be placed in a central location prior to deployment. Personnel records are retained at the CONUS home station during contingency and training operations. Copies of paper records which must be generated on the battlefield will be filed by the PSC. Electronic personnel management data important to the battle and/or individual soldier will continue to require maintenance and resources. Commanders and personnel managers will have ready access to personnel management information.

MORALE, WELFARE, AND RECREATION

Morale, welfare, and recreation services are a concern of leaders at every echelon of command. Soldiers must be afforded a respite from mental and physical fatigue. Commanders are responsible for the following minimum essential morale support services as the tactical situation permits:

- A safe area for soldier rest.
- A program to distribute books, magazines, and athletic or recreation equipment.
- Motion picture service.
- A live entertainment program, including soldier and touring shows.

As the theater matures, programs will be expanded. The PERSCOM will operate theater activities such as library services, rest and recreation centers, and live entertainment programs. The PERSCOM morale support service staff is not resourced to operate an active troop participation program, but will serve as MWR coordinators and consultants.

BANDS

Bands support combat operations by providing music that promotes troop morale, unit esprit, and civil military relations. Bands are organic to theater armies, theater army area commands, corps, divisions, and theater defense brigades. Bands provide music for troop gatherings and activities, military and religious ceremonies, and civil affairs or psychological operations events.

The secondary mission of Army bands is local security augmentation. In this role, bands may be assigned to command post security, perimeter defense, traffic control, or enemy prisoner of war security.

FINANCE SERVICES

Finance services include the functions of commercial accounts, pay, disbursing, and accounting. The mission of finance organizations is to provide essential finance support on an area basis.

The focal point of finance support throughout the corps or TAACOM is the finance group. The FG is a corps or TAACOM unit, and the FG commander is directly responsible to the corps or TAACOM commander for mission accomplishment. At the TA level, the theater finance command provides funding, technical guidance, and policy to the FG. There are no division finance units. The FG supports the corps or TAACOM by a network of subordinate finance support units under an area support concept. This concept provides for finance support to all units within a specified geographical area. In theaters where no FG exists, the TFC has command and control of FSUs. Corps or TAACOM units coordinate

with servicing FSUs for finance support. FSUs and PSCs are normally colocated to provide integrated support to a common population.

COMMERCIAL ACCOUNTS

Commercial accounts pay for supplies, equipment, and services as part of the procurement process which is critical to the logistics system on the battlefield. Finance commercial accounts elements must work closely with procurement and host nation support elements from logistics units. A local purchase and contracting capability provides alternatives to commanders to obtain logistics support. This function is divided into two areas: contract operations and imprest fund operations.

Payment for contract operations will be conducted by the TFC and FGs. These contracts may include services such as laundry and bath operations, transportation, and maintenance and materiel such as repair parts, Class I supplements, and construction materials.

Imprest fund operations are in response to the direct daily needs of the force—needs that cannot be reasonably satisfied by the standard support system. Cash payments are foreseen for such items as payment of day laborers, claims, Class I supplements (not otherwise on contract), and purchase of small quantities of supplies not available through the contract system. Such will be particularly the case for operations in areas removed from existing supply sources.

PAY

The pay function includes the subfunctions of military, civilian, foreign national, and travel pay.

Military pay is paying the soldier and servicing his pay account. Nonengaged soldiers may be paid a combat payment not to exceed \$100 per month or allowed to cash personal checks not to exceed a specified amount to be determined at the discretion of commanders in the grade of colonel or higher. Pay and allowances will be deposited to the soldier's bank account outside the theater, mailed to an address outside the theater, or accrue at the US Army Finance and Accounting Center. Leave and earning statements will be mailed through postal channels.

Civilian pay support will follow the same general guidelines as that provided to the uniformed force. Foreign national pay support is provided to non-US employees, day laborers, EPWs, and civilian internees. This pay may be provided through arrangements with the host nation or by the foreign

national pay section of the FG or TFC.

DISBURSING

Disbursing includes the responsibility for supplying US and foreign currencies, US Treasury checks, and military payment certificates to US forces and disbursing US Treasury funds in support of the pay functions described above. Also included are the funding of and collections from Class A agents, imprest funds, and nonappropriated fund instrumentalities. Disbursement and collection vouchers are source documents for accounting information.

ACCOUNTING

Appropriated and nonappropriated accounting, although required by public law, is not considered to be a battlefield essential function and will be performed outside the theater during wartime, whenever possible.

CHAPLAIN ACTIVITIES

Chaplain activities are performed through unit, denominational, or area coverage.

Unit ministry teams provide chaplain activities to meet the spiritual, ethical, and moral needs of soldiers and units at all echelons. The UMT is a special staff section under operational control of the unit chaplain. The chaplain serves as both personal and special staff officer responsible for implementing the commander's unit religious program and ensuring the free exercise of religion for personnel.

The UMT enhances the growth of morale and cohesion by being available at all times as an integral part of the unit. In low-

intensity conflicts, the UMT provides the broadest range of religious support and rites. In high-intensity conflicts, the UMT provides essential religious support which is appropriate to the tactical situation. During post-battle and reconstitution phases, the UMT provides unit memorial services, battlefield interment services (in coordination with GRREG units), and spiritual and religious activities. Direct unit involvement and forward deployment allow the UMT to perform ministry in support of combat stress and battle fatigue casualty treatment on an immediate or as-needed basis and provide opportunities for individual soldiers to receive religious support.

PUBLIC AFFAIRS

The public affairs officer, a member of the commander's personal staff at separate brigade and above, assists the commander in conducting operational or tactical missions and fulfilling public affairs responsibilities. As the commander's official spokesman, the PAO can satisfy the media's quest for news and answers to queries without distracting the commander or members of his staff. Commanders and staff should, however, be available for news conferences or interviews, when operational requirements permit. The PAO can help prepare members of the command by providing research and advice and establishing ground rules with the media. At brigade level and below, public affairs is a collateral duty normally assigned to the adjutant. As a personal staff officer, the PAO—

- Advises and informs the commander regarding public affairs guidance.
- Makes staff estimates and assesses public affairs impact of command actions.
- Satisfies soldiers' needs for military and domestic information.
- Accommodates media representatives.

- Gathers and releases newsworthy information.
- Explains command operations to the media in easily understandable terms.
- Provides public affairs instruction and policy guidance to subordinate commands.

Public affairs units are also available to assist the command PAO and other units without a dedicated PAO in the performance of command and public information services. The services these units are capable of providing include—

- Taking, developing, and releasing newsworthy photographs.
- Publishing command information newspapers.
- Producing and disseminating information for radio, television, and print media.
- Providing personnel and equipment to escort media representatives.
- Providing stand-alone broadcast capability or augmenting the Armed Forces Radio and Television System.

LEGAL SERVICE SUPPORT

Legal service support to the command, the soldier, and the military community is accomplished through five functional areas: administrative or contract law, criminal law, claims, legal assistance, and international or operational law.

Legal service support is provided by personnel in staff judge advocate sections

located at every major echelon of command from brigade to theater army. Legal specialists are located at battalion and brigade to ensure liaison with unit commanders and soldiers.

The staff judge advocate is a member of the commander's personal and special staff. As the commander's personal legal advisor,

the SJA implements the commander's policies under the preventive law program and establishes the climate for disposition of legal matters.

The ability of the commander to maintain morale, order, and discipline enhances unit combat readiness. Organizational morale is dependent upon the command's ability to care for the soldier and protect the soldier from unnecessary concern about legal issues affecting his family. Order and discipline depend on the commander's ability to dispose of violations against persons and property effectively while protecting the rights of the soldier, the victims, and the unit. The soldier and family are supported through premobilization legal planning, payment of claims for

damages and loss arising from military service, and the preventive law program. When morale, good order, and discipline are absent, unit readiness suffers.

Military judges and defense counsel are assigned at corps and TAACOM and provide the command with the prerequisite assets needed to dispose of courts-martial and other adversarial proceedings against a soldier. These assets are assigned to the corps or TAACOM and are further attached to subordinate organizations. Judge advocate general service organizations augment the corps and TAACOM commands with legal service personnel to ensure that appropriate legal assets are available.

The combat-critical functions of strength accounting, replacement operations, and casualty reporting influence tactical decisions and are necessary for success on the AirLand Battlefield. Other personnel service support functions—provided by elements such as finance groups, unit ministry teams, staff judge advocates, and public affairs personnel—are performed as the situation permits.

CHAPTER 5

Field Services and Supply Support for Soldiers

Personnel services and health service support are two of the components of manning the force. The third is field service and supply in support of the soldier. These services and supplies serve to further maintain the health, morale, and welfare of the individual soldier thereby providing the commander with healthy, motivated soldiers to fight the battle. Figure 5-1 depicts the doctrinal layout of these supplies and services as provided by units throughout the battlefield.

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FOOD

Food is one of the most important factors in soldier health, morale, and welfare. At the same time, the acquisition, storage, transportation, distribution, preparation, and serving of food has always been a logistics inhibitor to operations. The combat field feeding system is based on three basic rations. The MRE is the individual combat ration. It requires little or no preparation; it can be heated or eaten as is. The T Ration is a group feeding ration which requires only heating and serving. The B Ration is also for group feeding. Since it must be cooked, it requires a relatively stabilized environment. Both the B Ration and the T Ration can be unitized into modules for a specified number of meals. This considerably reduces both supply and kitchen labor requirements.

The field feeding system assumes theaterwide use of MREs for the first several days of combat and a gradual transition to prepared T and B Rations. The goal is to

provide soldiers at all echelons the maximum number of hot meals possible under prevailing situations and conditions.

The field feeding system is based on consolidation of feeding resources. Combat battalions generally consolidate field feeding at battalion headquarters level. The battalion headquarters food service section cooks A and B Rations or heats T Rations in an organic mobile kitchen trailer in the field trains. Food is packed in insulated containers and sent forward with the LOGPAC to company locations where a cook assisted by company personnel serves meals. Food and beverage containers are sent back for reuse. Units operating in the brigade rear are fed similarly by their own battalions or by a unit kitchen designated to feed specific units or personnel. The same pattern is followed in the division rear. Where practicable, small units are fed by a designated unit. For example, a maintenance battalion HHD is

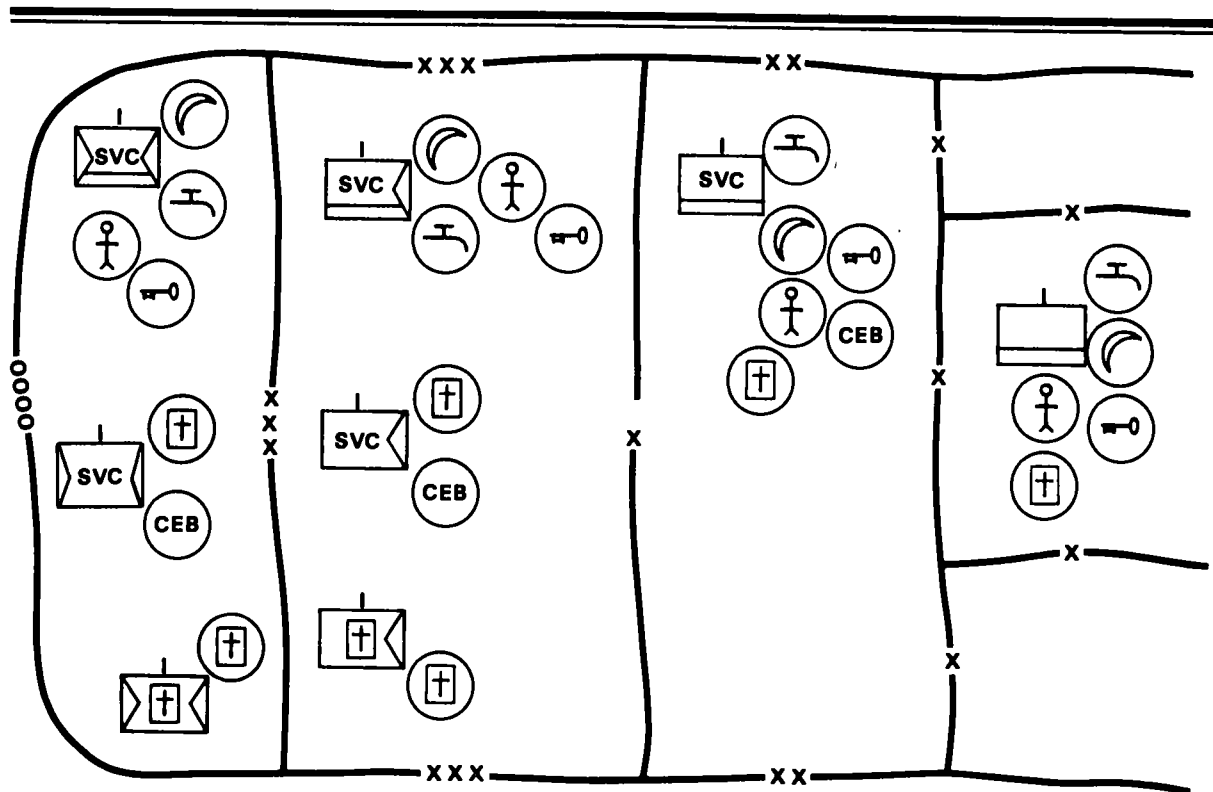


Figure 5-1. Services and Supply Units and Functions

usually fed by one of its subordinate companies and a RAOC is fed by the unit to which it is assigned. The same concept applies at echelons above division.

As the operational situation permits, efforts will be made to introduce the A Ration (fresh foods) into the theater. This requires extensive CSS expansion since refrigerated storage and distribution equipment is required along with a capability to make or acquire ice for unit storage. Even before the A Ration can be introduced, ration supplements such as hardy fruits are obtained

and distributed. A Ration components and other ration supplements are candidates for acquisition from host nation sources as are refrigeration facilities and equipment.

The ration supply system is similar to the system used to distribute other classes of supplies. GSUs supply DSUs which supply unit food service sections. Issues are based on strength figures.

Bread is baked by S&S and field service companies and is provided to consumers through normal Class I supply channels. Bread baking is a secondary field service and

may not be available to all theater units in the early stages of war. Heavy reliance may be placed on host nation sources.

Bread for divisions is baked by corps support group field service companies. Nondivision corps units receive this support from corps support group S&S companies. Units in the COMMZ are supported by TAACOM area support group S&S companies.

WATER

Because of worldwide commitments, water has become a major supply concern. We may fight where it is scarce. Normally, water is provided by supply point distribution. Water points are established as close to the using unit as possible considering the location of a water source and the commander's tactical plan. The most forward water points will normally be located in the brigade support area even if it requires establishing a dry point and transporting water from a suitable source. Using units draw water from the supply point using organic transportation. Water supply units can provide limited distribution to those units unable to support themselves. DISCOM supply units run the forward water points in all divisions.

Preventive medicine organizations are responsible for approving water sources. They also provide routine surveillance to ensure that water quality meets appropriate standards.

In the division, the water section of the appropriate supply unit establishes and operates water supply points in both the DSA

and each BSA. The water sections have sufficient production and distribution capability to allow the division to be self-sufficient in most areas of the world. In arid regions, the division is augmented with personnel and with storage and distribution equipment from corps. Water is supplied to the division by corps GS water units.

In the corps rear and COMMZ, DS water support is provided by the nondivision S&S company on an area basis. The organic water section operates supply points established at approved water sources. The S&S unit has sufficient assets to establish mobile supply points and to provide for limited unit distribution if necessary. In areas of operation where sufficient water sources are not available, water is provided by general support water units. These units use organic equipment to pump, demineralize, purify, store, test, and transport water in bulk containers to water distribution sites.

PERSONAL WELFARE AND COMFORT ITEMS

Class VI supplies are those items used for personal hygiene, comfort, and welfare. They include such things as candy, gum, dental care products, soap, and stationery. Initially the soldier will carry these personal items with him into the theater. As the supply system adjusts to demand, resupply will be by sundry packs whereby personal demand items are issued gratuitously. The sundry packs contain a varied assortment of such items for a given number of soldiers for a given period of time. Sundry packs will be issued with Class I items. When the situation permits it, mobile PX sales teams will provide

services to specified units or to troop concentrations. Many personal demand items may be purchased through host nation or contract sources.

CLOTHING AND SOLDIER EQUIPMENT

Class II includes a wide variety of supplies and equipment from clothing to tools. Clothing and individual equipment are furnished by GS and DS supply elements throughout the theater. Normal supply procedures are followed. Very limited stocks are carried by division DS units since clothing and individual equipment are generally bulky and impede division DSU mobility. Many items in this category are not immediately critical. Exceptions such as MOPP gear, environmental protection items (boots, overshoes, parkas, helmets), and mechanics' tools are normally stocked by DSUs. Distribution plans for protective clothing and equipment must consider service life of protective overgarments and filters and the threat. Unit priorities for issue are established.

LAUNDRY, BATH, AND RENOVATION

All personnel in the theater are provided laundry, bath, and renovation support as soon as the tactical situation permits and sufficient resources can be deployed. Routinely, clothing exchange and bath services are provided by augmentation elements of the MSB to all assigned units in the heavy divisions. If augmentation elements are not provided, laundry, clothing exchange and bath, and renovation services are provided to

soldiers in the division sector by corps field service companies. In the corps rear area and in the COMMZ those services are provided on an area basis by S&S companies assigned respectively to the corps and TAACOM support groups. It is particularly important that these morale-building services be provided at reconstitution sites and to division and corps reserve areas. These services can often be provided by HNS or by local contract.

GRAVES REGISTRATION

Graves registration is one of the primary field services. It is immediately essential to the support of combat operations. The way in which it is performed can have a direct and sudden impact on the morale of soldiers and the American public. GRREG services are generally provided on an area basis.

Graves registration services include all phases of remains processing from search and recovery to final disposition, whether it be burial in theater or return to and burial in CONUS. Army policy is that remains will be evacuated to CONUS as long as remains handling and transportation asset capability are sufficient. When that capability is exceeded, remains will be buried in theater in temporary or permanent cemeteries. When tactical emergency requires it, remains may be interred in emergency individual or mass graves for later transfer to permanent cemeteries in theater or CONUS.

Responsibility for GRREG functions begins in the unit in which the soldier dies. Units recover their own dead and evacuate them to the nearest GRREG collecting point, in the BSA for forward units.

Remains are then further evacuated to corps or TAACOM GRREG units which process remains for burial or evacuation to CONUS service mortuaries. GRREG units also process and make proper disposition of personal effects.

In an NBC environment, mass casualties will result from a combination of effects such as burns, fragmentation, internal damage from nuclear blast overpressure, radiation, disease from biological warfare, and chemical agent poisoning. Local decisions will be made as to the disposition of remains. Contaminated remains may have to be buried in place following emergency burial techniques and using engineer equipment. If time and assets are available, the remains and personal effects may be decontaminated. However, if they cannot be decontaminated, they are buried in a mass grave at the site of

recovery and the site is clearly marked accordingly.

In instances of mass casualties, the joint central graves registration officer in the theater, with the approval of the theater commander, gives permission for mass burials of casualties. If there are no graves registration units in the area and contact with higher headquarters is lost, the senior officer in the area decides whether the remains should be buried in a mass grave or evacuated. Every effort to identify remains, to include checking unit casualty logs and interviewing survivors, must be made prior to the interment.

Prior to the arrival of graves registration augmentation, unit commanders must be prepared to search for, recover, and evacuate or inter deceased personnel in their areas of responsibility.

Food service and supply support to the soldier are essential for his health, morale, and welfare. GRREG services are vital to the support of combat operations. It is a tenet of faith that the Army will always take proper care of its dead. To sustain the fighting forces over a period of time, clothing and soldier equipment, personal welfare and comfort items, and laundry and bath services are provided as permitted by the tactical situation.



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PART THREE SUSTAINING THE SYSTEMS

The preceding part of this manual addressed the all important aspects of manning the fighting force. This part describes those subfunctions of CSS which sustain the force and specifically the weapon systems with which it fights. The chief subfunctions addressed here are arming, fueling, fixing, and moving. None are accomplished in isolation; they must all be integrated into a single effort to support battle by ensuring that weapons and equipment are always ready to fight at the time and location of the commander's choice.

CHAPTER 6 Arming the Force

Today's fighting force uses a large variety of sophisticated weapon systems which consume high tonnages of ammunition. Supplying the arms and ammunition for this force is critical. The arming system must deliver the right mix and quantities of ammunition to the right place and at the right time. Weapon systems must be armed as close to the point of employment as the tactical situation permits. Support must be responsive and flexible. The tactical commander cannot strike an unwary foe unless he can arm his forces to fight at the most advantageous time and place.

During periods of intense combat, arming the fighting force is the most extensive and time-sensitive task of the sustainment system. It must routinely be accomplished in a highly responsive manner to support accomplishment of the commander's mission.

The primary goal of the ammunition support structure is to provide the ammunition needed to support the plans of the commander. Because of the weight, volume, and hazardous characteristics of ammunition, its movement and storage create

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problems not inherent in other classes of supply. During wartime, some aspects of storage and transportation procedures are less stringent than in peacetime to minimize storage area and force structure requirements. When combat necessity requires the relaxation of accepted ammunition safety procedures in storage and transportation, the increased risks must be evaluated to ensure that critical assets in storage areas are not exposed to unacceptable risks.

Ammunition planning is the responsibility of operations and logistics personnel at all levels of command. It requires close coordination between tactical commanders, their operations and logistics staff officers, and logisticians external to the command. Logistics staff officers and operators must recommend to tactical commanders the location of ammunition storage sites and the allocation of ammunition. Such advice is based on availability of ammunition in the theater, proximity of potential storage areas to transportation networks, validity of demands, and other related factors.

Ammunition planning must be included at the strategic, operational, and tactical levels. This is necessary because of the long lead times involved and the cost of large amounts of Class V stocks. Such planning must consider both initial and resupply actions as well as the weight and volume of ammunition to be moved, often on short notice.

The term "Class V" is synonymous with "ammunition" and includes small arms ammunition, artillery rounds, hand grenades, explosives, mines, fuzes, detonators, missiles, and bombs. It also includes special weapons. Class V support to engineer operations is further discussed in Chapter 2.

CONVENTIONAL AMMUNITION

Ammunition supply in the theater of operations is based on a continuous refill system. Stocks issued to the users are replaced by stocks moved up from the rear area. Stock levels at rear storage areas are maintained by deliveries from CONUS or

other designated sources of supply. The ammunition distribution system in a theater operates through a combination of supply actions by logistics elements and controls on expenditures by commanders. Figure 6-1 shows the conventional ammunition supply flow in the theater of operations.

Ammunition is shipped from CONUS by containership or break-bulk transport. Selected critical items may be shipped by air. In the theater, it is moved through fixed ports or over the shore. Preconfigured sets of munitions such as antitank mines, armor-piercing mines, and antihandling devices must be prepackaged in standard sets to facilitate rapid employment and reduce material-handling requirements.

Once through the port or over the shore, the ammunition may be moved to one of several different destinations depending on the needs of the theater. The bulk of it is routed by rail or truck to theater storage areas or corps storage areas, although some may be shipped directly to ASPs. From the TSAs/CSAs, ammunition is shipped either to ASPs or, in the case of the CSAs, it may be shipped directly to ATPs.

Ammunition supply points (TSAs, CSAs, ASPs, ATPs) operate on an area support basis. ASPs are established as close to the tactical units as practicable. When terrain, road network, and the tactical situation permit, they will be located in division areas. Whether the ASP is in the corps or in the division area, the corps is responsible for receiving, storing, and issuing the ammunition. The DAO coordinates with the corps support command or other appropriate logistics organization to control the flow of ammunition by quantity and type for the division.

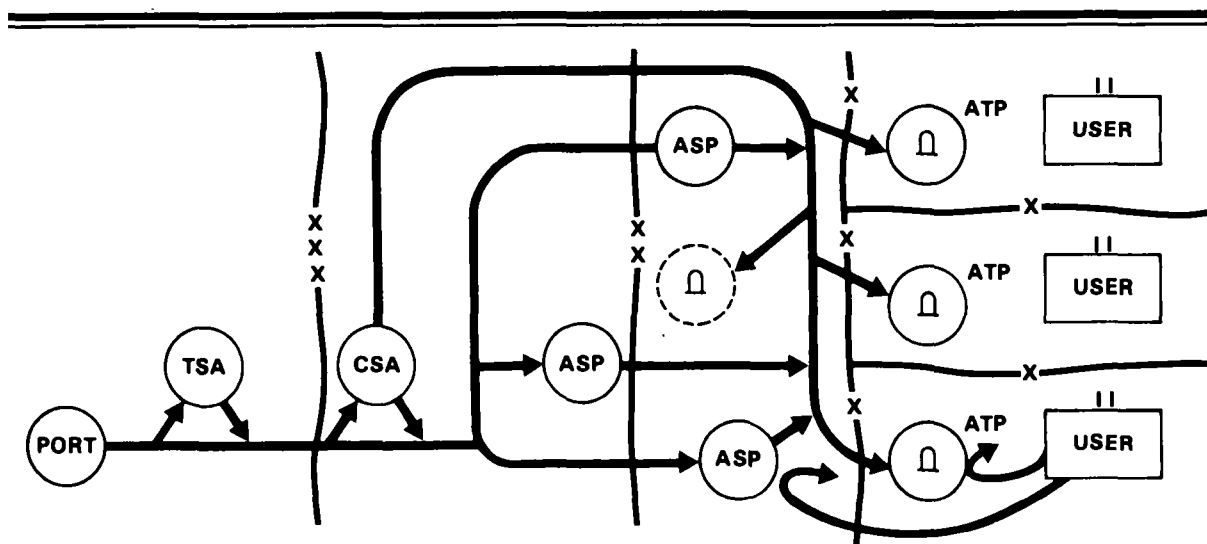


Figure 6-1. Class V Conventional Supply Flow

ATPs are located forward in the division area. Normally, there is an ATP in each of the brigade support areas and one in the DSA. ATPs receive ammunition on corps trailers and transload it directly to using unit supply vehicles. Corps transporters drop full trailers and pick up empties. Combat units are relieved of the burden of traveling long distances to obtain ammunition. Maneuver commanders and logisticians must anticipate increased requirements for Class V items associated with changing tactical situations and arrange for increased supply flows to the ATP. For instance, the transition from offensive to defensive operations results in maneuver commanders directing their supporting engineers to emplace high quantities of mines which must be readily available at the ATP. The ultimate goal of ATP operations is to supply 100 percent of division user requirements.

In addition to providing direct support to the brigade, ATPs must also provide ammunition support to other division units, corps units, and special operation forces operating in the brigade sector. Ammunition requirements that exceed the capability of the ATP will be filled by the supporting ASP.

If there is a shortage of transportation for ammunition resupply, the theater army or corps commander, at the recommendation of the DCSLOG or the G4, may direct that other available assets be used to transport ammunition to sustain the combat forces. These assets may include combat unit, DISCOM, COSCOM, TAACOM, and host nation transportation assets. Aerial resupply by helicopter is used to meet contingency requirements, delivering directly to the using unit when the tactical situation dictates. Airdrop may be used if warranted by the seriousness of the situation.

Expenditures of ammunition must be controlled based on tactical priorities and ammunition availability. Tactical commanders provide this control by the use of allocations. In order to sustain tactical operations for specific periods, combat units indicate their ammunition needs by submitting RSRs for specific types of ammunition to their next higher tactical headquarters.

Due to rapidly changing combat situations and problems which may arise in the ammunition distribution system, the actual supply rate may be less than that required, and action to control expenditures is necessary. To accommodate these variables, each tactical commander, from the highest level down to battalion, announces an allocation (CSR) of critical/short supply items to his next subordinate commander. The commander at each level will normally hold a quantity of each type item as a reserve to weight the battle and meet unanticipated requirements or to exploit enemy vulnerabilities exposed in a mobile, dynamic battlefield environment. The allocation to

subordinate units will be expressed as a specific number of rounds for a prescribed time period and will be employed to weight a unit on the FLOT or to increase the firepower of reserve forces.

While an established force structure and doctrine for ammunition supply exist, they will not always meet unexpected and extraordinary requirements. Logisticians meet such requirements through innovative, expedient methods. If necessary, they assign ammunition supply tasks to other units; they pre-position or cache ammunition along planned routes of advance and withdrawal and at planned successive positions; and they recommend lower allocations to lower priority units. All means are used to ensure that fires can be delivered rapidly on high-priority targets and that maneuver commanders have sufficient preallocated high-technology/precision/smart munitions. This is necessary to capitalize on fleeting tactical opportunities to destroy key enemy weapons; enemy command, control, and intelligence capabilities; and combat formations and to seize or retain the initiative.

ENHANCED LETHALITY MUNITIONS

In recent years, tremendous improvements have been made in munitions lethality. These enhanced rounds, such as Copperhead, have a terminal guidance capability enabling them to engage moving targets day or night. Future generations of this type of ammunition will require little or no interface with their launch platforms. These rounds will be high cost, relatively low density, and in high demand by combat users due to their combat power multiplying effect.

Enhanced lethality munitions are highly sensitive conventional rounds that will be supplied through the same distribution system as other conventional ammunition. Further, stringent measures must be taken to disperse and secure them, to the maximum extent possible, in numerous magazines within storage areas to prevent catastrophic loss in the event of an accident, an act of sabotage or terrorism, or initial attacks on storage sites.

The combat power associated with these limited assets must be fully understood by both the logistician and tactician. Carefully preplanned allocations for enhanced lethality munitions must be accomplished based on threat and mission analysis. As the

threat or the mission changes, these allocations should be revised. Strict enforcement of the allocations at each tactical and logistics level will ensure that the tactical commander can employ these rounds where they can be most effective.

NUCLEAR AMMUNITION

US policy requires that the use of nuclear ammunition be strictly controlled. Every action to use or supply nuclear ammunition requires a command decision. Strict security measures must be applied to all procedures of use and supply, and many of the procedures are classified. The items must be physically secured at all times. There are rigid requirements for technical maintenance, and there are special procedures for making reports on each item until it is used. A separate logistics system, based on designated allocations, nuclear stockage levels for firing units, nuclear ammunition supply points, and weapons holding areas, is used to meet these requirements. Figure 6-2 shows the nuclear ammunition supply flow.

The nuclear ammunition allocations that tactical commanders receive tell them the numbers and types of ammunition they can plan to use during stated periods. Allocations do not authorize them to use the ammunition. They may use the ammunition only after the proper authority grants the release. Also, allocations do not mean that commanders have physical custody or possession of the nuclear ammunition. The allocations may include ammunition for use by units not under their command, such as supporting artillery units of a higher echelon. Weapons carried by the firing units (prescribed nuclear

load) are within the allocations but are not automatically replenished when expended.

When they are authorized and directed to do so, units replenish their PNLs from nuclear ammunition supply points. Direct support NASPs are located in relatively close proximity to the division rear boundary to minimize convoy distances to the supported firing units. They are a high-priority target for the enemy and must be provided a high level of physical security against air and ground attacks. The NASPs must be 100-percent mobile and be capable of relocating rapidly and often.

A nuclear ammunition company provides DS and GS supply and maintenance support for nuclear warhead sections, nuclear projectiles, and atomic demolition munitions. Each company, supported by an MP heavy security company, can deploy two 100-percent mobile NASPs capable of carrying the division PNLs and the corps reserve (prescribed nuclear stockage). They secure, issue, store, transport, and maintain nuclear ammunition. These NASPs can be resupplied by air or ground from the WHA/airhead located in the COMMZ or by another NASP. They also provide an evacuation channel to the WHA for nuclear ammunition.

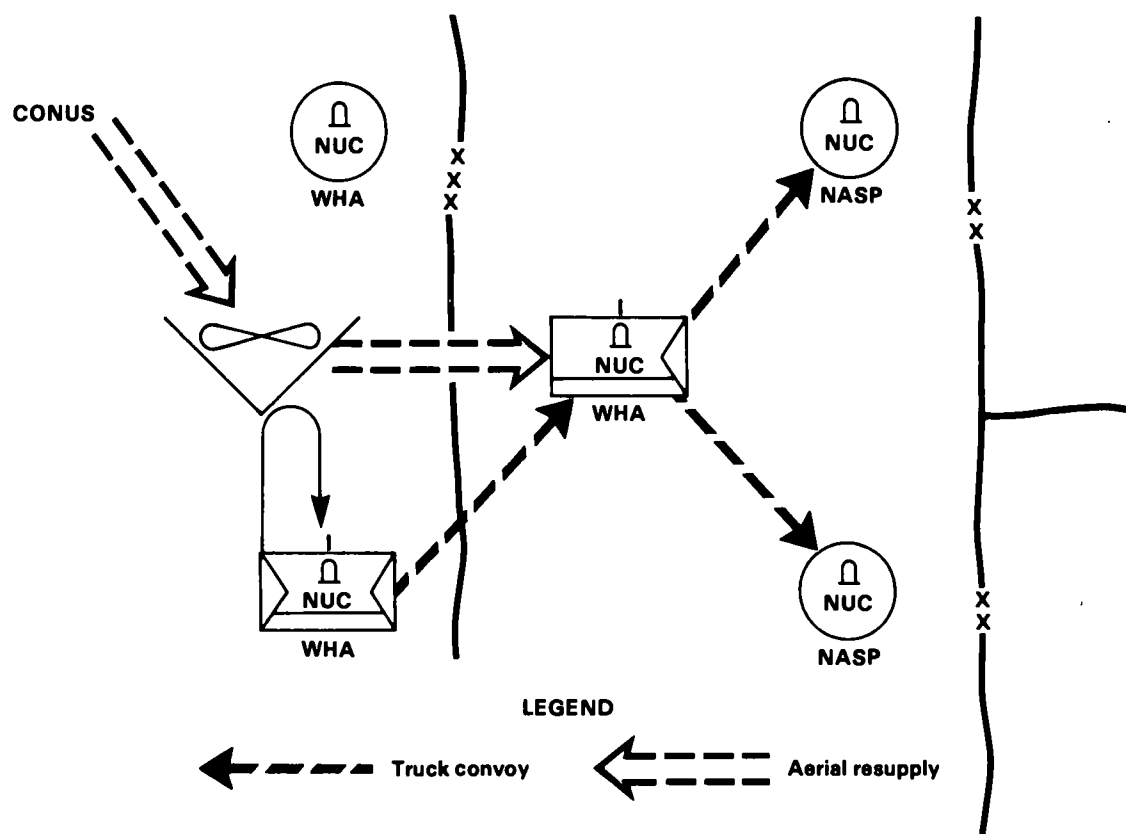


Figure 6-2. Nuclear Ammunition Supply Flow

An additional nuclear ammunition company, supported by an MP heavy security company, is located in the COMMZ to provide support to the theater by deploying two WHAs. Each WHA will operate an airhead in proximity to its location; one designated as the primary airhead and the other as the alternate airhead. The COMMZ WHAs provide security, transportation, storage,

resupply, and maintenance for nuclear ammunition through the GS level. The WHAs store theater reserve nuclear ammunition and receive nuclear ammunition from supported units that require evacuation to depot.

Allied support for nuclear weapon systems of US origin is based on negotiated agreements between the United States and individual countries concerned.

CHEMICAL AMMUNITION

Support for chemical ammunition involves GS and DS supply of end items and components to using units, technical escort of shipments, and maintenance of end items and components. Figure 6-3 shows the chemical ammunition supply flow.

Theater stocks are retained in GS storage locations with chemical ammunition supply points established and maintained at the direction of the theater army or corps commander. Such stocks are stored in a minimum number of locations commensurate with security of assets and combat requirements. The GS facilities are manned by a unit consisting of cellular teams that are consistent with the stockage level and the resultant stockpile reliability requirements. Chemical ammunition stocks are afforded the maximum possible protection from the elements to prevent the deteriorating effects of extended storage in peacetime or wartime.

Chemical ammunition for forward deployed forces is retained in rear GS storage until deployment is directed. The initial issues to artillery units could be delivered by air to expedite retaliatory firings. For sustained operations, or when directed by the theater or corps commander, mobile cellular chemical ammunition handling teams with stocks are deployed forward to establish the CASPs.

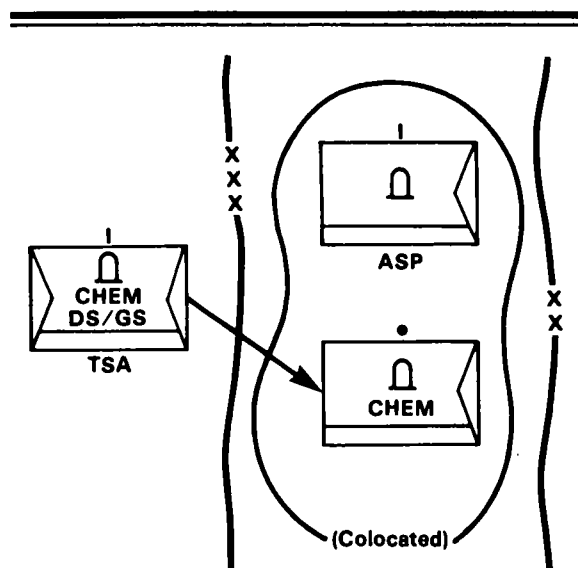


Figure 6-3. Chemical Ammunition Supply Flow

The CASP is resupplied as required by escorted shipments direct from the GS storage facility. Flexibility must be maintained to allow support of both unitary and binary munitions. The GS storage facilities for the theater perform prescribed monitoring and maintenance of stocks.

MISSILE AMMUNITION

Supply of missile ammunition for weapon systems is a responsibility of the conventional and nuclear ammunition distribution systems and includes requisition, receipt, distribution, storage, maintenance, surveillance, security, disposal, and safety.

The conventional ammunition distribution system is responsible for supplying

nonnuclear missiles such as TOW, MLRS, Dragon, Redeye, Stinger, Roland, Chaparral, HAWK, Patriot, HELLFIRE, and nonnuclear Lance (warheads and missile main assemblies) to the user.

The nuclear ammunition distribution system provides users with warheads for nuclear capable missile systems.

Missile ammunition (less nuclear warheads) arrives at the theater of operations in the same manner as conventional ammunition from CONUS and is shipped to

storage sites by the same modes as conventional ammunition. Nuclear components for missiles are resupplied from CONUS by air.

EXPLOSIVE ORDNANCE DISPOSAL SUPPORT

EOD service is designed to detect, identify, render safe, recover, evacuate, and dispose of items of unexploded US and foreign ordnance and to disseminate technical information on enemy explosive ordnance material. This includes conventional, improvised, chemical, biological, and nuclear weapons that have been fired, dropped, or placed in such a manner as to constitute a hazard to personnel, installation, material, or operations. This does not include breaching or clearing minefields or normal reinforcements of tactical obstacles.

Army EOD services are responsible for items of unexploded ordnance located above coastal tide mark and not in an area specifically under the control of a sister service or another nation's armed forces. EOD service support in the theater of operations is provided by detachments organized into five, three-person response teams. They can operate for periods of up to 72 hours without returning to their parent headquarters.

EOD staff officers are assigned to the TAACOM, COSCOM, RAOC, and separate corps and separate divisions to exercise control over EOD service. The EOD staff officer establishes policies for EOD service, recommends distribution of EOD service in assigned areas of operations, monitors EOD incident reports, and coordinates EOD services.

The EOD control group is a command and operational control organization at the

COSCOM and TAACOM levels. It serves as the command and control element for the EOD detachments. The control group commander may also perform the duties of the staff EOD officer reporting directly to the ACofS, SPO.

The EOD detachment is the primary operating element and contains the capability around which is built a concept of EOD support applicable in both the army in the field and in CONUS. This unit responds to incidents involving improved conventional, improvised, chemical, biological, or nuclear weapons (foreign and domestic) as prioritized by the EOD control center.

EOD detachments are allocated to the COMMZ/RCZ on the basis of deployed corps and/or the projected number of explosive ordnance incidents. In support of the corps, detachments are allocated on the basis of the number of divisions deployed. The structure in the corps may also be adjusted to the projected number of EOD incidents.

Requirements for EOD services are received from control centers or, in case of emergency, direct from the RAOC of the area support groups which assign specific incident missions to the disposal units. The disposal units continuously inform the control centers of unit capability (personnel and equipment availability). Upon completion of an assigned mission, the disposal unit forwards incident reports to the EOD control center.

The AirLand Battlefield environment plus the high firepower rate of modern weapons will place unprecedented demands and strain on the ammunition supply system. Such high-tonnage use within a short period demands increased coordination between the user and supplier and that ammunition supply units be organized with the necessary manpower and equipment.

Because of the large variety of ammunition and weapons and the expected fluidity of the AirLand Battle, planning the arming effort is of utmost importance. Requirements for ammunition service in a theater of operations originate with the planned deployment of forces for actual or anticipated combat. Basic loads are either carried with the deploying force or are issued upon arrival.



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CHAPTER 7

Fueling the Force

A fighting force can move and fight only as long as it is supplied with fuel. The modern Army's high-performance air and ground vehicles provide great potential mobility, but consume huge quantities of fuel. It has been estimated that a modern US division will consume as much fuel as a World War II corps.

Today's fuel supply system must be responsive to highly mobile forces which are maneuvering for protection and position. Fuel must be supplied to vehicles transporting ammunition to combat forces. Fuel must be provided for the huge fleet of vehicles which will constantly move supplies and people forward from PODs and supply bases to the front and return unserviceables and other cargo to the rear.

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Class III supplies are placed in two general categories. These are *bulk fuels* such as motor gasoline, diesel fuel, and aviation turbine fuel and *packaged products* such as greases, oils, and lubricants. Bulk fuel is handled by the theater petroleum distribution system. Packaged products are handled through the same supply channels as Classes II and IV.

BULK FUEL

The theater petroleum supply system begins when bulk petroleum products are received in the theater. Large ocean tankers deliver bulk petroleum to the theater at marine petroleum terminals either across the dock or by means of pipelines from offshore mooring facilities. Floating hoses may be used in over-the-beach operations. Tank farms operated by petroleum pipeline and terminal operating battalion units receive the bulk petroleum supplies, preferably by pipeline. Figure 7-1 shows the bulk fuel supply flow.

Bulk fuel is transported throughout the theater by 5,000-gallon or larger fuel tankers, railway tank cars, barges, pipelines, flexible

hoses, and Air Force aircraft. Pipelines generally provide the most economical, efficient, and effective means of moving large quantities of bulk fuels. The plan for distribution of bulk fuels makes maximum use of this method of delivery when possible. When the situation is not stable, areas which the pipeline traverses are not secure, or terrain is not suitable, pipelines are vulnerable to interdiction and pilferage. Under these conditions, pipelines may not be the most effective means of distributing bulk fuels, and greater reliance must be placed on other means.

Petroleum pipeline and terminal operating battalions operate the pipeline and establish

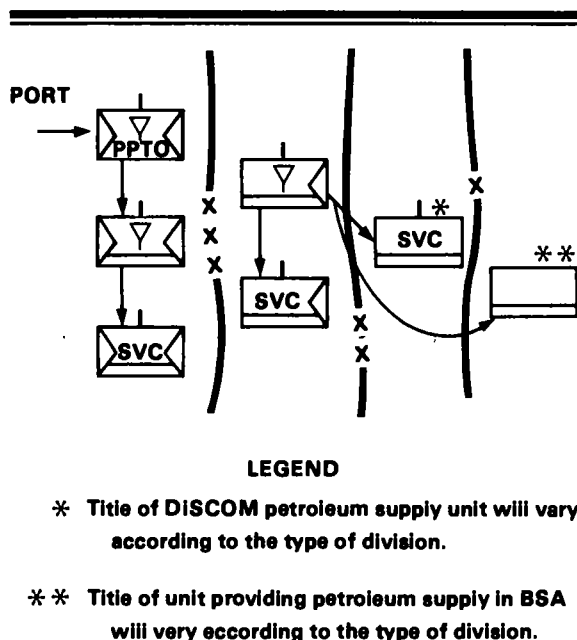


Figure 7-1. Bulk Class III Supply Flow

supply terminals along its length. Petroleum supply companies of the TAACOM and COSCOM receive bulk fuel from these terminals and store it in large-volume tanks. Transportation medium truck companies (petroleum) transport the fuel in tankers to direct support supply units. These units supply users through supply point and/or unit distribution.

In developed theaters such as Europe, maximum use is made of existing commercial pipeline and terminal facilities and of host nation personnel and equipment to operate the facilities. In undeveloped theaters, flexible hoselines are established as soon as possible with follow-on pipeline construction, if necessary and practicable.

BATTALION OPERATIONS

Battalion commanders are responsible for ensuring that their weapon systems and all other equipment are fueled. Diesel is the main fuel in maneuver units. It is used in tanks, armored personnel carriers, trucks, and other tactical vehicles. Motor gasoline is used, in smaller amounts, for generators, field ranges, and other equipment.

The prescribed load of fuel for the maneuver battalion is that quantity required to operate until resupplied and is the total capacity of all of its fuel tanks. This includes all fuel in organic tank and pump units or other bulk fuel carriers. Supplies are dispensed often from the prescribed load, and the load must be frequently replenished.

The battalion S4 knows every item of equipment in the battalion that uses fuel. He knows what kind and how much fuel each item needs. The division G4 sets the frequency of forecasts and the period they are to cover. The brigade S4 gets the forecast of each battalion S4 and supporting units in the brigade area, usually in the periodic logistics or operations reports. The forecasts are totaled and sent to the DMMC. In response to these forecast needs, fuel tankers and products from the fuel supply element of the DISCOM are sent to the brigade support area.

BRIGADE OPERATIONS

Bulk diesel and motor gasoline supply and mobile filling station services are routinely provided in the brigade support area. These services are provided by the appropriate supply elements of the DISCOM.

Fuel is provided in the brigade support area in response to forecasts and usage. All battalion task force S4s in the brigade send their forecasts to the brigade S4. All other division and nondivision units that operate

in the brigade area, including combat support and combat service support units, also send their forecasts to the brigade S4. Thus, the S4 forecasts show the needs of all units operating in the brigade area. The brigade S4 provides the FSB with a copy of his forecast. Based on the forecast, the FSB advises the DMMC of the projected requirement. The S4 also provides his forecast to the division G4 who will act on it if fuel allocations are in effect.

DIVISION OPERATIONS

Units in the division rear report their status and needs through their S4 channels to the MSB. They also provide a copy to the division G4 for his use if allocations are in effect. Based on the forecasts received from the S4s of customer units, the MSB transmits the consolidated forecast to the DMMC. The DMMC passes the consolidated division requirement to the corps MMC.

Fuel may have to be allocated to meet tactical requirements. The G4 recommends allocations of fuel based on input from the G3. When the Class III officer at the DMMC gets instructions on the allocation from the G4 section, he passes the allocation to the MSB and the FSBs so that issues may be made according to the allocation.

Fuel is brought to the division and brigade support area Class III supply points in large-capacity corps and division tankers. It may also be delivered by railway tank car, barge, pipeline or flexible hoseline, or tanker to the brigade area, bypassing the division main Class III supply point and eliminating double handling of the fuel. Fuel is either pumped into the tanks of the fuel system supply point or transferred into division tankers for distribution within the division.

In some cases, the semitrailers may be exchanged, a full one for an empty one.

The aviation brigade is the only division unit which uses aviation turbine fuel. It provides fuel supply to all division aircraft through fueling points at the division airfield and at FARPs throughout the division area. The aviation brigade is resupplied by COSCOM units although the division main fuel supply point maintains some aviation turbine fuel stockage for the brigade. The aviation brigade reports aviation turbine fuel status to the DMMC.

CORPS OPERATIONS

In the corps rear area, petroleum units assigned to the COSCOM operate the bulk petroleum supply system. These units deliver bulk products to the Class III supply elements of the DISCOMs, separate brigades, ACRs, and to corps DS supply companies for issue to consumer units. Petroleum supply companies of the battalions receive, store, and issue bulk products at Class III supply points and deliver bulk products to major consumers via hoselines. The battalion's medium truck companies (petroleum) deliver bulk products from the petroleum supply companies to DS supply units and divisions, separate brigades, and ACRs. Dependent on mission and area of employment, unique distribution patterns may have to be established for bulk Class III support to the ACR. Deliveries bypass intermediate storage locations whenever possible.

The system supplies bulk petroleum by immediately replacing quantities issued and consumed. Status reports (or activity summaries), which substantiate issues of products made during any given period, are the basis for system replenishment. When controls are imposed, the objective is not to

allocate or limit quantities of products, but to provide information to the command for decisions affecting diversions or other adjustments needed to satisfy requirements. The MMC coordinates movement requirements with the MCC to ensure that the distribution pattern developed makes optimum use of all available transportation modes.

Centralization of inventory control functions is at the COSCOM MMC in the combat zone. The MMC, unless otherwise directed, receives requirements (or forecasts) from the divisions, separate brigades, ACRs, corps support groups, and nondivision DS supply units and receives activity summaries from GS petroleum suppliers. The COSCOM MMC computes requirements, maintains centralized cognizance over the corps inventory of petroleum, and provides data and summaries to the COSCOM staff. The COSCOM MMC transmits activity summaries, which are the basis for necessary replenishment and supplemental requirements, to the TAMMC.

COMMZ OPERATIONS

In the COMMZ, depending on the magnitude of the petroleum distribution system needed to support theater requirements, a petroleum group assigned directly to theater army normally operates the theater petroleum distribution system. The group is responsible for detailed petroleum distribution planning that is the basis for design, construction, and operation of the distribution system for the theater. The petroleum group distribution system extends from ports of entry through the COMMZ and as far into the combat zone as practicable. The petroleum group transports fuel by truck, railcar, and pipeline to TAACOM and COSCOM GS petroleum supply companies. The TAACOM GS petroleum supply companies provide

petroleum to area support group DS companies which distribute it to using units located in the COMMZ.

The TAMMC receives activity summaries from the petroleum group. It provides reports required by the theater army staff to monitor the performance of the system. It also approves supplemental requisitions from the COSCOM MMC. It consolidates projected requirements in the form of planning estimates from the COSCOM and other US forces and forwards the consolidated requirements to the Joint Petroleum Office.

The JPO is at unified command headquarters, with subarea petroleum offices established as required. The JPO and/or the SAPO advise on and coordinate petroleum planning, slate fuel into the theater, and coordinate with the Defense Fuel Supply Center. The JPO also advises on the allocation of petroleum products and facilities and ensures that the requirements of each of the military services are included in the total theater petroleum requirements. The JPO receives and consolidates theater requirements for bulk petroleum products submitted by the military services or from the SAPO, if established. It submits the petroleum slate to the Defense Fuel Supply Center of the Defense Logistics Agency in CONUS for supply (purchase) action.

PACKAGED PRODUCTS

Packaged petroleum products include lubricants, greases, hydraulic fluids, and other specialty products that have been packaged at the procurement source. Lubricating oils are required to lubricate engines

and other components. Greases are used to lubricate individual parts and assemblies which are exposed to heavy friction. Fog oil is required for smoke screen operations. Requirements for fog oil are affected by the terrain and environment, weather conditions, the time required to produce smoke, and the duration of smoke operations. Fog oil requirements can be high.

Packaged products are stored at general support supply bases. They are distributed through direct support supply organizations to consumers throughout the theater.

In the division, if lubricants are required in large quantities, support battalions may periodically forecast needs and forward stock status reports from distribution points to the DMMC. The DMMC then uses these status reports to compute overall requirements for the division. When packaged Class III products are used in small quantities, they are requisitioned like Class II and IV items.

Supply elements of the DISCOM set up distribution points in the division and brigade support areas. Maneuver units in the brigade areas place their requests for items with the distribution point in their brigade support area. If the distribution point has the items on hand, it issues them to the customer. If it does not have the supplies on hand, the request is forwarded to the DMMC. If the

supplies are not on hand in the division, the DMMC requests them from the COSCOM MMC. The COSCOM MMC sends a materiel release order directing the GS unit that supports the division to ship the supplies to either the main distribution point or the forward distribution point serving the maneuver unit. Class III personnel at the distribution point are responsible for receiving, storing, and issuing the items to the maneuver units.

In the corps, packaged Class III supplies are issued in response to single-line-item requisitions. Requirements flow from DMMCs and corps DSUs to the COSCOM MMC. When requisitions for replenishment supplies are received by the COSCOM MMC, MROs are sent to the GSU. The GSU issues the supplies and sends activity summaries back to the MMC. The GSU also coordinates movement requirements with the local MCT.

In the COMMZ, general supply units assigned to the TAACOM provide support through the nondivision DS supply companies also assigned to the TAACOM. Some general supply companies assigned to the TAACOM store theater reserve stocks of packaged products. These units are responsible to the TAMMC and are the primary source of supply for TAACOM and COSCOM GS units.

Today, a high-volume fuel system is necessary merely to support routine tactical operations. Success during peak consumption periods may ultimately depend on the ability of CSS units to provide and sustain an increased flow of fuel.



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CHAPTER 8

Fixing the Force

This chapter is about making weapon systems and the equipment that supports them available to commanders so that the tempo of operations can be sustained. While the thrust of the chapter is on fixing equipment, equipment replacement is discussed since it is a major element of making weapon systems available.

Modern forces are highly mobile, they use extremely sophisticated equipment, and they maneuver and fire with great rapidity. With this enhanced war-making capability has occurred a parallel increase in the requirement for maintenance. The Soviets have a superiority in the number of weapon systems fielded. Faced with that superiority, we must make the most of each weapon we field. First, the machines with which we enter battle must be operationally ready. They are made so with a deeply ingrained maintenance discipline. Second, disabled systems are returned to the battle as soon as possible. Losses are replaced quickly. This means that our maintenance and replacement systems extend forward to where weapons become disabled.

The forward maintenance elements are critical to the success of this concept. They must be configured with the proper personnel, equipment, tools, and replacement parts. Personnel must be well trained in diagnosing and correcting faults. Additionally they must carry as many high-usage repair parts as possible and have ready access to a forward located ASL for parts they do not carry. Replacement ready-to-fight weapons, complete with fuel, ammunition, and crews, must be readily available.

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Fixing is traditionally and correctly viewed primarily as a CSS function. The process is central to tactical and operational success. Agility, initiative, and synchronization depend upon fightable weapon systems. A commander who has 65 percent of his tanks operational may wisely delay an attack if he can realistically expect the fixing process to have 90 percent ready within 24 hours. Alternatively, the battle can be weighted by allocating replacement systems.

THE MAINTENANCE SYSTEM

Maintenance is a combat multiplier. Where opposing forces have relative parity in numbers and quality of equipment, the force which combines skillful use of equipment with an effective maintenance system has a decided advantage. It has an initial advantage in that it enters battle with equipment that is operational and likely to remain so longer. It has a subsequent advantage in that it can return damaged and disabled equipment to the battle faster. These advantages are the real purposes of a maintenance system.

Current and future equipment will contain more built-in test equipment and be of modular design, allowing maintainers to reduce maintenance turnaround time.

To support the requirements of the modern battlefield, maintenance is performed at three levels: unit, intermediate, and depot. These levels provide a responsive maintenance system and increased operational readiness, and they enhance battlefield mobility and flexibility.

UNIT MAINTENANCE

Unit maintenance is characterized by quick turnaround repairs by component replacement, minor repairs, and performance of scheduled services. Most units, organizations, or activities are authorized organic unit maintenance personnel to perform unit maintenance on equipment assigned to or used by them to accomplish their mission. For some equipment, such as medical materiel, all authorized maintenance tasks are assigned to unit maintenance wherever practicable. Also, certain units, organizations, and activities are authorized an organic intermediate (direct support) maintenance capability. An example of this would be a combat heavy engineer battalion which

is authorized an organic IDSM capability on its engineer-peculiar equipment only.

INTERMEDIATE MAINTENANCE

Intermediate maintenance includes intermediate (direct support) maintenance and intermediate (general support) maintenance.

IDSM is performed in direct support of the user and is supportive of the tactical level of war. It is performed on equipment in the direct support unit area or, when practicable, at the site of operation or failure. The principal task is component replacement.

IDSM units are tailored to perform repair and return to the user. Extensive use is made of highly mobile maintenance support teams from support maintenance units.

"One-stop" service is the goal of intermediate (DS) maintenance. To achieve this goal, IDSM units serve as the supply system outlet for repair parts required by using units to perform authorized unit maintenance tasks. These units also maintain operational readiness float assets to assist in maintaining the requisite degree of materiel readiness in supported units.

Intermediate (GS) maintenance supports the theater supply system primarily by repairing components. It is supportive of the operational level of war. It is performed by designated TDA and TOE units. IGSM units are located in the COMMZ and operate in semifixed or fixed facilities.

Giving the commander more flexibility weights the battle logistically. IGSM units have a secondary mission of reinforcing the DS maintenance units in the theater. This is done by evacuating items requiring lengthy repair to IGSM facilities.

DEPOT MAINTENANCE

Depot maintenance is supportive of the strategic level of war. It is performed by AMC depots or activities, contractors, and host nation support personnel in support of the supply system. It is performed in fixed facilities in CONUS and the theater of operations and is production-line oriented.

Normally, depot maintenance is performed where the wholesaler determines it is most appropriate to support the force; for example, in the COMMZ, in CONUS, offshore, or in a third country. Such operations support the overall DA inventory management program. They are used as an alternative or supplement to new procure-

ment as a source of serviceable assets to meet DA materiel requirements.

Programs for depot maintenance of materiel are approved by HQDA and controlled by the Army Materiel Command. Approved depot maintenance programs are executed by designated Army arsenals and depot maintenance facilities, by agreement with other military services, and by contractual arrangement with commercial firms. Such repair programs are planned and scheduled based on the needs of the supply system and the reparable exchange program and in accordance with the availability of requisite repair parts and other maintenance resources.

FORWARD SUPPORT

Modern Army weapon systems such as tanks, attack helicopters, air defense radars, and missiles require specially trained mechanics; special technical assistance; special parts and tools; and test, measurement, and diagnostic equipment. In addition, the nature of the modern battlefield demands that repairs be made quickly and at, or as near as possible to, the point of failure or damage.

This requirement implies a forward thrust of maintenance into division and brigade areas where the battle is more violent and the damage greater. Maintenance assets are pushed as far forward as possible consistent with the tactical situation to repair inoperable and damaged equipment and to return it to the battle as quickly as possible.

Maintenance units are structured with highly mobile maintenance support teams to provide support forward on the battlefield as directed by the unit maintenance control officer. People, parts, TMDE, and tools are

sent to forward areas as required and pulled back when no longer needed.

If weapon systems cannot be repaired in the forward area, they must be recovered and evacuated to rear areas for repair. Emphasis must be on effective and efficient use of available equipment because timely replacement may not be possible.

Battle damage assessment and repair is the first step in returning disabled equipment to the battle. Damage is assessed by mechanics specifically trained in battle damage assessment, and essential repairs are made on location. Recovery by the crew and a battalion MT is sometimes necessary before BDAR can be accomplished. Recovery is the removal of the equipment to a battlefield location which allows the repair to be accomplished. If essential repairs cannot be made at the breakdown site, further recovery to the UMCP or to the MCP in the brigade rear may be necessary. It is the responsibility of the

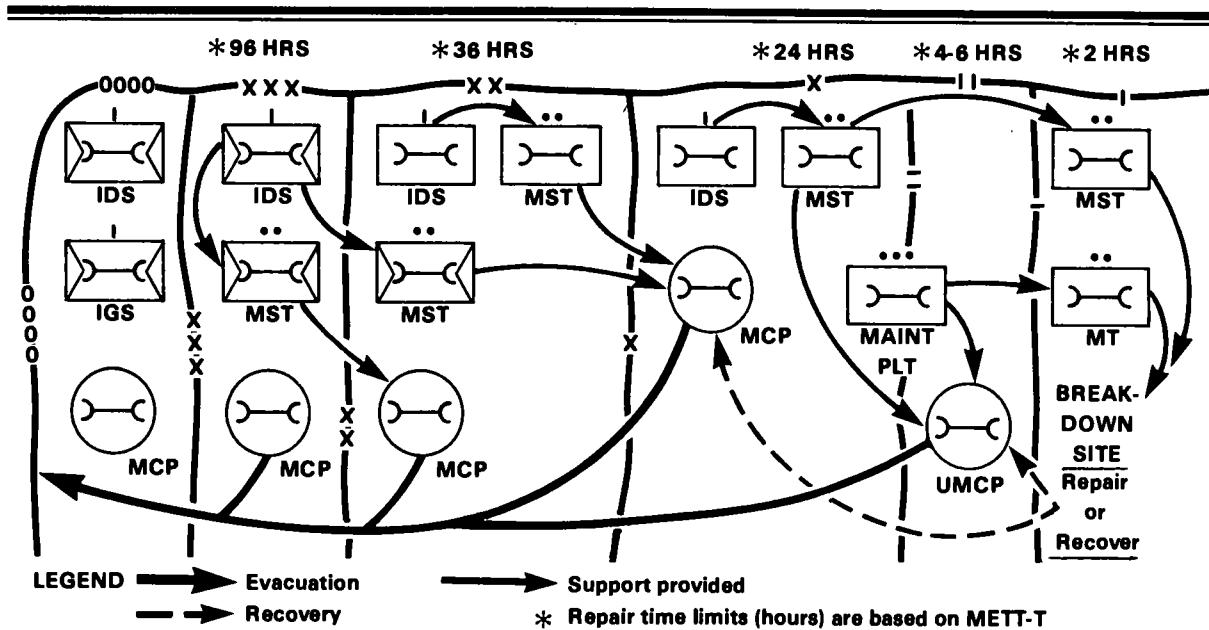


Figure 8-1. Maintenance Support in the Theater.

owning unit to recover inoperable equipment. At the UMCP or the MCP, further BDAR may be undertaken or the decision made to evacuate the equipment to a maintenance facility where it can be repaired within acceptable time limits. Evacuation begins where recovery operations cease. Equipment that cannot be returned to the battle quickly is evacuated by maintenance units within capability or by transportation units to the division MCP in the DSA or to a corps MCP. Evacuation is a coordinated effort between maintenance and transportation elements. Severely damaged equipment may be evacuated directly from the UMCP to any higher level of maintenance. Repair/recover/evacuate decisions are made at all levels based on the time required to repair. Those times are based on command policy and the

factors of METT-T. They do not include evacuation preparation and movement time.

The decision to cannibalize or effect controlled exchange on unserviceable equipment is made by the commander who owns the equipment. Cannibalization is the authorized removal, under specific conditions, of serviceable and unserviceable parts, components, and assemblies from materiel authorized for disposal. Controlled exchange is the removal of serviceable parts, components, and assemblies from unserviceable, economically repairable equipment and their immediate reuse in restoring a like item of equipment to a combat operable or serviceable condition. Supervised battlefield cannibalization and controlled exchange may be used when parts are not available from the supply system.

Cannibalization and exchange decisions should be made as close to the site of damaged equipment as possible in coordination with maintenance support team personnel. Decisions must be based on guidelines established at higher headquarters. Cannibalization is a major source of critical repair parts in a combat environment and should be aggressively used

according to the command's established policy.

Maintenance support in the theater is depicted in Figure 8-1. Guidelines for time to repair at specific levels are provided for planning purposes only. The ultimate decision concerning times is a matter for command consideration.

CONVENTIONAL EQUIPMENT MAINTENANCE

COVERING FORCE

Due to the tempo and fluidity of the battle, the amount of maintenance that can be performed in the covering force area may be very limited. The accessibility of equipment inoperable due to equipment failure or battle damage, as well as the time available to make repairs, may be even further reduced during defensive operations. For these reasons, the maintenance concept in the covering force area is simple. If equipment cannot be repaired quickly at unit or intermediate (DS) level, it must be recovered and evacuated to the appropriate maintenance element in the rear area or destroyed.

The first link in the maintenance chain is the crew. A well-trained and proficient crew may be able to make minor repairs on the spot and get its equipment back into the battle. This is the ideal situation. Barring that, the crew can assist in the recovery of equipment to a protected area where unit teams can either repair it or determine that it should be evacuated. The recovery process can be accomplished with recovery vehicles organic to the unit or by one vehicle recovering another. In either case, it is desirable that the crew remain with its equipment, situation permitting.

It is equally important that teams be dispatched to reach the equipment quickly. The unit maintenance team assesses the damage and makes repairs when possible. The capabilities of unit maintenance elements are increased through support from their IDSM unit in the form of personnel, portable test equipment, and replacement components.

When necessary, cannibalization and/or controlled exchange is performed to obtain needed components and replacement parts. If damaged or unserviceable equipment cannot be quickly repaired, maintenance teams must direct that it be evacuated. Units normally use organic equipment to recover items to a designated point where they can be picked up and evacuated by division or corps HETs and helicopters or supply vehicles returning to the rear.

In this respect, logistics command, control, and communications are critical. The need for adequate communications extends all the way down to the maintenance teams. Without communications capability, maintenance teams cannot provide forward area support, be shifted to critical sectors, or initiate requests for evacuation of equipment.

Evacuating unserviceable and battle-damaged equipment in the covering force area presents a formidable problem. Ideally, all unserviceable and battle-damaged equipment should be recovered and evacuated. However, what can actually be evacuated from the covering force area is driven by the time and resources available and the accessibility of the disabled equipment. Where possible, unit recovery equipment should be centralized at the battalion level to permit its most efficient and effective use.

Since recovery and evacuation resources are limited in each unit, priorities for evacuation must be established. Items that are most urgently needed and that can be repaired at IDSM level should be evacuated first and reparable requiring IGSM second. Nonreparables, naturally, are last. Further evacuation from the central points in the covering force area to repair facilities farther to the rear is accomplished using all available and suitable returning supply vehicles.

Evacuating unserviceable and battle-damaged equipment from the covering force area raises the question as to what extent the replacement of major end items, specifically weapon systems, in the covering force area is possible. Replacement of individual items may be possible. However, large-scale replacement in the covering force area is not envisioned, and it is not considered feasible to pre-position replacement weapon systems in the covering force area.

DIVISION

As in the covering force, the forward support maintenance elements (unit maintenance teams, platoons augmented by IDSM teams) are the first line of the maintenance effort in each brigade area. Backup may be

provided by maintenance elements in the division rear.

Those items that can be repaired by the forward support elements are segregated and repaired according to established priorities. Items that cannot be repaired by the forward support elements are evacuated to the brigade support area or, if necessary, to the division support area. Equipment that must be evacuated for extensive repair is replaced through the Class VII supply system and evacuated to IGSM facilities. During periods of intense combat, ORF assets may be issued to replace initial losses. From that point on, primary reliance for replacement end items is placed on the Class VII supply system.

The missile support company also operates in the forward areas by sending maintenance support teams either to the UMCPs or to establish a central servicing point in the brigade support area. Medical items requiring repair beyond the ability of the medical company are evacuated through medical equipment maintenance channels.

CORPS

Corps IDSM units provide support on an area basis to corps units in the corps rear. They also send maintenance support teams forward into division rear and brigade support areas to support nondivisional corps units (for example, corps artillery, air defense, engineers) operating there. These MSTs also provide backup maintenance support to division maintenance units.

IDSM units in the corps rear perform maintenance on equipment that has been evacuated from the division areas in addition to providing the full range of support to nondivision corps units located in the corps rear area.

COMMZ

The maintenance structure in the COMMZ is far more extensive than that in the corps. Maintenance units assigned to support groups provide intermediate (DS) maintenance to all units located in their areas of responsibility. IGSM units also assigned to support groups provide intermediate (GS) maintenance for repair and return of equipment to the theater supply system. These units operate from relatively

fixed facilities and employ assembly line operations to maximize output. Using fixed facilities and assembly line production techniques increases efficiency and productivity.

Marine craft and other specialized maintenance units are also located in the COMMZ to support port and theater sea lines of communications operations.

ARMY AIRCRAFT MAINTENANCE

The objective of Army aircraft maintenance is to ensure maximum availability of mission-capable aircraft. Aircraft maintenance provides maximum mission capability of total weapon systems through the accomplishment of maintenance where it can be most effectively and economically performed. This includes the performance of avionics and weapons maintenance, as well as aircraft maintenance.

The objective is accomplished by the three-level aircraft maintenance system. The levels are aviation unit maintenance, aviation intermediate maintenance, and depot maintenance. Each aviation unit has an organic AVUM capability. That AVUM capability is backed up by AVIM units in the division, corps, and COMMZ. Depots perform major overhauls, some component repair, and other tasks that require more extensive skills, equipment, and facilities than are available at the AVIM level.

Three-level aircraft maintenance doctrine allows for accomplishing the objectives of Army aircraft maintenance and enhances maintenance management procedures. It

provides maintenance support as far forward as possible while giving the user a greater repair capability. It allows the AVIM unit to be more responsive to quick repair and return to user and places detailed and time-consuming tasks at depot so as to not distract from supporting front-line combat forces. Each element is organized to perform specific functions to provide a "one-stop" maintenance echelon.

AVUM activities perform high-frequency maintenance required to retain aircraft in or return them to a serviceable condition. Company-size aviation units perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft mission capability.

The division aircraft maintenance company provides mobile, responsive "one-stop" maintenance support. In addition to authorized AVIM-level tasks, the AMCO also performs AVUM functions, when necessary, in case of excessive backlog or skill shortage in the supported unit. The AMCO also assists

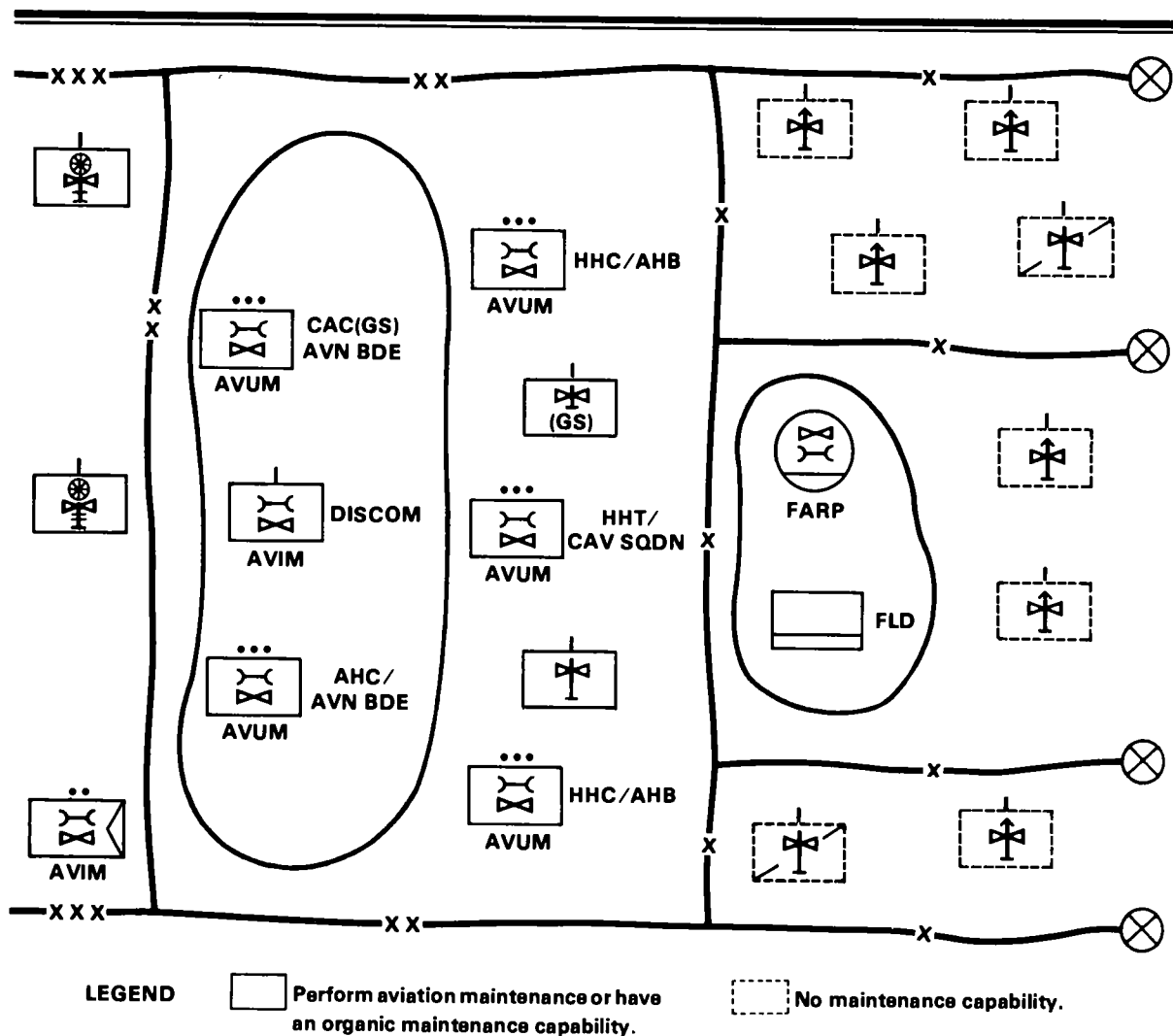


Figure 8-2. Aircraft Maintenance Activities.

with aircraft recovery and performs air evacuation, on-the-job training, and technical assistance through the use of mobile maintenance support teams.

In the main battle area, maintenance and service actions are limited to aircraft combat

maintenance or battle damage repair performed by AVUM support teams. The AVUM element of the aviation squadron/battalion will provide minor on-aircraft maintenance requiring general mechanics' tools. AVIM support is provided by the division AMCO

ARMY WATERCRAFT MAINTENANCE

which is positioned as far to the rear in the division support area as possible; still ensuring its ability to link with the AVUM platoons to provide the required support. In the corps rear area, nondivision AMCOs provide AVIM support to corps aviation units, backup maintenance capability for division AMCOs, and limited AVIM support to air ambulance companies operating in the division area. Figure 8-2 shows a possible theater arrangement of aircraft maintenance activities.

During the early hours and days of a conflict, extreme requirements are placed on all aviation assets. Aircraft readiness and the ability to sustain that readiness must be assured. This requires extensive use of AVIM support teams providing forward support at the AVUM site where the major thrust is to remove and replace components. The key to this effort is the reparable exchange program. Adequate forward stocks of components and the capability to repair them at the corps AVIM level are essential. As the battle continues, extensive aircraft maintenance will be performed in the corps AMCO.

A realistic controlled exchange/cannibalization policy, rapid recovery of damaged or downed aircraft, and a flexible system of cross-leveling spares is an essential path for the transition into the rigorous demands of combat maintenance. Implicit in the remove-and-replace maintenance approach is the deferment of scheduled maintenance tasks and the total shift to on-condition maintenance.

Depot maintenance on aircraft and aircraft modules is usually performed in CONUS. This level of maintenance is performed in Army facilities, by contract with commercial firms, or through interservice agreements with other military services.

Maintenance and repair of watercraft used in Army water terminal operations pose problems and require arrangements which are somewhat different from those for other types of equipment. Supporting maintenance facilities for watercraft must be located at or near the water's edge. Rather than being echeloned along the forward axis of a theater as in other systems, these facilities are generally spread laterally along the theater's rear boundary and, except for some inland waterway systems, their orientation is toward the rear. Watercraft organizations typically get support from civilian shipyards either in theater or from other country facilities.

Recovery of disabled watercraft is primarily the responsibility of the operating unit and is normally accomplished by sister vessels. Recovery requirements beyond the capability of the operating unit are the responsibility of the DS/GS floating craft maintenance company. Disabled watercraft are normally evacuated to the nearest repair facility. When this is not feasible, watercraft are moved to the nearest haven for protection during repair or until further recovery or evacuation is completed. The terminal battalion is normally responsible for recovery and evacuation.

Classification of disabled watercraft and coordination for their evacuation to a sustainment maintenance or other facility is the responsibility of the unit. The DS/GS floating craft maintenance company also functions as a maintenance collection point. Permanently disabled watercraft will be cannibalized to the extent possible before final disposition.

Normally about 25 percent of the watercraft in a watercraft unit will be programmed for unit or higher maintenance.

Accordingly, plans should be based on having only 75 percent of the assigned craft available for sustained operations. When craft are transported on cargo vessels or in LSDs, minor repair and maintenance may be performed en route. However, maintenance during movement must not be used as a substitute for the time which is reserved for maintenance before embarkation. Maintenance before embarkation is necessary to ensure that the maximum number of craft will be ready at the start of the operation. Operation in heavy surf or in waters studded with reefs or full of debris, long delays on a shallow beach, storms, lack of opportunities for preventive maintenance, and other abnormal conditions may greatly reduce the number of craft available for employment during an operation.

The maintenance concept for watercraft provides maximum self-sufficiency, supportability, and maintainability with a minimum use of personnel, parts, materiel, and equipment. Intermediate marine maintenance is performed by a combination of crew and DS/GS floating craft maintenance companies. Watercraft are often employed at great distance from shore-based maintenance facilities. Because of this, many maintenance tasks that would be IDSMS on other equipment are performed by the crew. Depot level maintenance associated with Army watercraft and amphibians which exceeds the Army maintenance unit capability is principally performed under contract to civilian shipyards. This situation is true whether deployed in CONUS, peace or wartime.

DS/GS floating craft maintenance companies function on a return-to-user basis. Maintenance functions vary for each craft as a consequence of the crew's requirements and

capability to effect repairs. DS/GS floating craft maintenance companies provide backup supply and maintenance support and perform those functions too time-consuming or operationally burdensome for the operating unit. The DS/GS floating craft maintenance company provides one-stop support from its base location and forward on-site service by means of floating maintenance teams. Its maintenance operations are based aboard a floating machine shop located in a harbor or port facility where there is a high density of watercraft. DS/GS floating craft maintenance companies are assigned to either a terminal group or a terminal battalion.

Drydocking and associated repairs are normally the responsibility of the depot maintenance activity, particularly for larger craft, unless haul-out facilities are available at the DS/GS level. The prompt and effective repair of components and assemblies for return to the supply system is a function of the DS/GS floating craft maintenance company.

MISSILE SYSTEM MAINTENANCE

Logistics support concepts for air defense and surface-to-surface missile systems are determined by the technical design and tactical employment concept of each system. Complexity varies between missile systems and demands system-unique support structures in all aspects of supply, reparable exchange, and maintenance. Unlike conventional maintenance, this produces a commodity-oriented support system at IDSMS and IGSM/depot levels within the theater.

This also applies to the missile Class IX supply system.

The operational requirements and sophisticated equipment of certain missile systems dictate that the majority of maintenance functions be performed at the operational site. This maintenance capability must include the skills, tools, test equipment, and repair parts required to accomplish immediate on-site repairs of missile systems and their associated firing and control equipment.

Division missile support emphasizes widespread use of MSTs throughout the entire division area. MSTs are deployed to support battalion task forces and will perform repairs as far forward as possible. A tailored reparable exchange program is vital to success of the forward support concept. This primary missile IDSM concept is built around three integral parts: the maintenance support team, a base maintenance facility, and responsive repair parts support.

DIVISION

Missile system maintainers deploy their MSTs forward from the FSB or MSB, as appropriate, into the supported battalion combat trains. The MST mission is on-equipment maintenance; that is, to get as much of that battalion's unserviceable equipment operational again as fast as possible.

MSTs troubleshoot systems with system-peculiar test equipment, identify faulty LRUs, repair systems by replacing faulty LRUs with serviceable ones, and retrograde faulty LRUs through unit PLLs to the base maintenance facility. If necessary, parts runners or Army aviation are used to expedite repair parts.

The MST is the missile system battle damage assessor and can effect repair or direct battle-damaged equipment to the appropriate repair activity in an effort to get the most firepower back into operation as quickly as possible. If a system cannot be restored to operable condition by replacement of LRUs but can be repaired by a higher order of maintenance capability, the system is evacuated to the base maintenance facility in the DSA by the owning unit.

Located in the division rear, the missile maintenance company base facility receives faulty LRUs and systems from MSTs and supported units and repairs these by replacing faulty shop replaceable units.

LRUs which cannot be repaired at the base maintenance facility and all SRUs are retrograded to IGS/depot maintenance for repair. Whole systems evacuated to the base maintenance facility for repair normally receive first priority for repair effort if they can be restored to operable condition within maintenance deadlines established by the DISCOM. If the system cannot be repaired within these deadlines, it is evacuated to IGS/depot units at EAC.

The authorized stockage list of repair parts for missile weapons is maintained in the MSB. Limited quantities, based on brigade needs, may be sent forward to the FSBs. Repair parts resupply to the division is through the theater repair parts distribution system.

CORPS

Army units equipped with missile systems which are deployed at corps level receive support from intermediate (DS) missile maintenance units in the COSCOM. These maintenance units are deployed in the corps rear

depending upon the type and density of weapons deployed behind the division. The same principle of intermediate (DS) maintenance followed in divisions is used to support corps weapons. COSCOM maintenance units evacuate LRUs they cannot repair and SRUs to IGS/depot units for repair.

Repair parts supply support is provided by the appropriate COSCOM missile maintenance unit. These units draw their repair parts from depots or through the theater repair parts distribution system.

ECHELONS ABOVE CORPS

At EAC, high and medium altitude air defense, strategic land combat, and perhaps tactical missile defense weapon systems are deployed. Units equipped with these weapons are highly mobile and require a dedicated maintenance support structure to maintain system readiness, to provide continuity of support, and to support out-of-sector deployment. This dedicated maintenance support structure is built around the firing battery as the lowest deployable unit and provides sufficient support to maintain acceptable levels of readiness and to permit out-of-sector

support to EAC units which must deploy beyond the effective distance of routine logistics support.

Intermediate (DS) maintenance is again built on the principle of the MST and the base maintenance facility. These maintenance assets are allocated and accompany the supported units throughout the theater based upon the commander's tactical plan.

Repair parts support to firing units is provided by the maintenance unit in the form of PLL replenishment. Repair parts resupply to maintenance units is provided by the theater repair parts distribution system.

IGS/depot repair activities are also located at EAC and provide support to all IDSM units in the theater. These levels of maintenance (IGS and depot) provide the same basic functions and are addressed as one level of maintenance (IGS/depot). Maintenance is performed in support of the theater supply system by TOE/TDA units, host nation support, and contract personnel. IGS/depot missile system maintenance units maintain the theater ASL for all supported missile systems and provide missile parts supply for the theater.

COMMUNICATIONS-SECURITY EQUIPMENT MAINTENANCE

COMSEC items are not processed through routine supply and maintenance channels because of the intelligence significance of some of the items. A COMSEC logistics support company performs supply and maintenance tasks on COMSEC materiel in the theater.

The responsibility for maintaining nonclassified COMSEC items (controlled cryptographic items) is expected to move to the nondivision IDSM companies. Eventually all COMSEC items may be maintained by electronics technicians in the intermediate (DS/GS) maintenance units.

MEDICAL EQUIPMENT MAINTENANCE

Maintenance of biomedical equipment is managed by the MEDCOM medical logistics control group. Medical supply, optical, and maintenance units perform intermediate (DS) maintenance on medical items. Intermediate (GS) maintenance is provided by MEDSOM units in the COMMZ.

Medical equipment maintenance below the MEDSOM battalion is performed, whenever practical, as unit maintenance. Biomedical equipment repairers are assigned to units whose equipment densities justify

such assignments. Units having no assigned maintenance personnel are normally satellite for maintenance on units having a unit-maintenance capability. Medical equipment maintenance beyond the capabilities of using units is performed by the MEDSOM battalion. Intermediate (DS) maintenance is also provided by medical equipment maintenance detachments attached to medical units on an area basis. Backup support for the corps is provided by the MEDSOM battalion (COMMZ).

COMMUNICATIONS-ELECTRONICS MAINTENANCE

On the integrated battlefield, C-E maintenance will have the day-to-day mission of repairing equipment at all operational levels, especially in rear areas. The goal is maximizing the operating time of our battlefield systems incorporating electronic technology by reducing on-system repair time through modular design. This will be accomplished by capitalizing on module, line replaceable unit, or printed circuit board replacement instead of piece-part repair and centralizing those tasks requiring skilled diagnosticians, repairmen, and sophisticated test equipment.

Unit maintenance is characterized by quick turnaround repair by replacement, minor repair, and performance of scheduled services. It is performed by the operator or crew, the company maintenance section, or organic maintenance teams deployed from the battalion maintenance section.

Repair parts supply for unit maintenance consists of a minimum prescribed load list

needed to perform preventive maintenance, scheduled services, minor repairs, and replacement of selected LRUs. Replaced LRUs are evacuated to supporting maintenance organizations authorized within division and nondivision units for screening and minor repair and/or evacuation to a repair activity located in echelons above corps.

An exception to this doctrine is made for certain units such as signal battalions which have companies widely dispersed from division or corps maintenance units while still required to maintain exceptionally high levels of readiness and combat electronic warfare intelligence battalions which have highly complex, low-density equipment. In these exceptional cases, the battalions rely on—

- An organic intermediate maintenance capability to perform diagnostics and minor repairs.
- On-board spares.

- Forward deployment of maintenance support teams from rear areas by surface or air transportation.

Intermediate maintenance in divisions and corps is performed in support of the user and is tailored to perform repair and return services. It is characterized by mobile support as far forward as possible, repair by replacement, and stockage of high-volume, fast-moving items and components.

Electronic maintenance at this level involves an initial screening of suspected faulty LRUs for serviceability. If the LRU is serviceable, it is returned to the unit or placed back into the supply system. If the LRU is

unserviceable and requires completion of complex tasks using highly skilled personnel and sophisticated test or diagnostic equipment by units operating at echelons above corps or depot level, the entire LRU is evacuated directly to the appropriate center of maintenance. For unserviceable LRUs which can be repaired by units within the corps area, diagnosis (fault isolation) to the failed printed circuit board level is accomplished. It is then restored to serviceability by replacing the unserviceable item which is subsequently evacuated to the intermediate maintenance facilities at echelons above corps or depot. EAC maintenance units perform IGSM for this category of equipment.

TMDE SUPPORT

Much of the equipment currently in the Army inventory is highly complex with sensitive components. Much of it contains electronic circuitry control mechanisms and parts with close tolerances. Maintenance and repair of such equipment depends on equally complex and sophisticated test, measurement, and diagnostic equipment which is costly. Many items of equipment have built-in testing and diagnostic systems which themselves must be checked. Since TMDE is expensive and its operators must be highly trained, TMDE must be used as efficiently as possible.

The TMDE maintenance company provides calibration and repair support for TMDE used with Army materiel in depots, maintenance units (division and nondivision), and tactical and other units within the company's area of operations. The company emphasizes responsive calibration and repair

support to supported units. This service is provided primarily by area TMDE support teams, with contribution from the area calibration laboratory. All area TMDE support teams of the company have organic transportation.

Area TMDE support teams are assigned a mission of dedicated division support or geographical area support. An example of dedicated division support is the attachment of a team to a division maintenance battalion. This team provides calibration and repair support to all division units and, where circumstances warrant, to those nondivision units operating within the division area.

A geographical area support mission can be illustrated by the attachment of an area TMDE support team to an area support group. This team provides support to all units within or passing through the assigned geographical area.

REPAIR PARTS SUPPLY

Like ammunition and fuel, Class IX repair parts (and maintenance-related Class II items) are critical in keeping weapon systems in the battle and in returning damaged and inoperable equipment to the battle. Two aspects of Class IX supply make it different from the system for providing other supplies. One is that a large number of Class IX lines are routinely supplied from CONUS by air lines of communication. The other is that repair parts are supplied at the direct support/AVIM level by maintenance units rather than by conventional supply units.

Those repair parts and other maintenance-related items required to perform authorized unit maintenance tasks make up a unit's prescribed load list. Initially, authorized nonrecoverable repair parts, to include reparable exchange, may be included.

A combat PLL, composed of combat-essential repair parts necessary to sustain a unit during its initial entry into combat, is stocked by units during peacetime as part of their PLL. Items in the combat PLL need not be demand-supported. However, during peacetime, they are used and replenished along with other demand-supported items. Under combat conditions, non-combat-essential parts, such as those required to comply with peacetime legal or safety requirements and those used for comfort or cosmetic purposes, are evacuated or left behind. This is necessary to keep units combat effective yet unencumbered and mobile.

Except for aviation, PLLs of the several companies of a battalion are sometimes brought together in the battalion trains and placed under the supervision of the battalion motor or maintenance officer. However, while unit PLLs may thus be colocated, they are not normally consolidated. Colocation is simply

a management arrangement whereby a central maintenance facility for the battalion is established.

The source of supply for using units is normally an intermediate (DS)/AVIM maintenance company. This direct support/AVIM unit maintains an authorized stockage list which should include all items that are on the PLLs of supported units. Thus the ASLs are said to umbrella the supported units' PLLs. It should also include those parts required to perform maintenance tasks authorized at the intermediate (DS)/AVIM maintenance level. The intermediate (DS)/AVIM maintenance unit requisitions replenishment stocks through its supporting MMC or, in some cases, requests them from a supporting DS unit.

IGSM units maintain shop stocks to support maintenance tasks authorized to be performed at the IGSM level. They also requisition replenishment stocks through their supporting MMCs and do not maintain ASLs. This does not apply to AVIM units.

The source of parts for IDSM units is normally a GS repair parts supply company. Its ASL may or may not umbrella the ASLs of the IDSM units it supports. The ASL of a repair parts supply company is replenished based on requisitions submitted to the MMC by the IDSM units supported by the company. The MMC totals demands from all IDSM units supported by a repair parts supply company and places requisitions based on the total number of items with the repair parts supply company as the "ship to" addressee. The repair parts supply company provides activity reports; for example, receipts and issues, to the MMC so that accurate inventory data is maintained. This does not apply to AVIM units.

Because of their criticality to the readiness of weapon systems, repair parts are intensely managed. A large number of them (and some maintenance-related Class II items such as hand tools and small test equipment) are shipped from CONUS by air lines of communication. Under the direct support system, they are transported directly from aerial port to the requesting unit. By thus bypassing intermediate levels in the supply system, order and ship time and pipeline inventories are reduced. The only issue of items in support of ALOC units from GS supply units to DSUs are those requested on a high-priority requisition.

Other Class II and IX supplies (generally consisting of heavy-tonnage items like

engines, batteries, tracks, and tires) are moved by surface transport because their routine movement by air would compete for scarce airframes and severely tax critical aviation resources. However, air movement of such items is the preferred method to meet critical needs, particularly when the item is a high-cost, low-density item. It is also the preferred method of picking up critical reparables at DSUs, taking them to GSUs, and delivering repaired items. Moving such items is a valid and routine mission for Army aviation resources.

Requisitions flow from nondivision maintenance units and DMMCs to COSCOM and TAACOM MMCs and direct from COSCOM and TAACOM MMCs to CONUS NICPs.

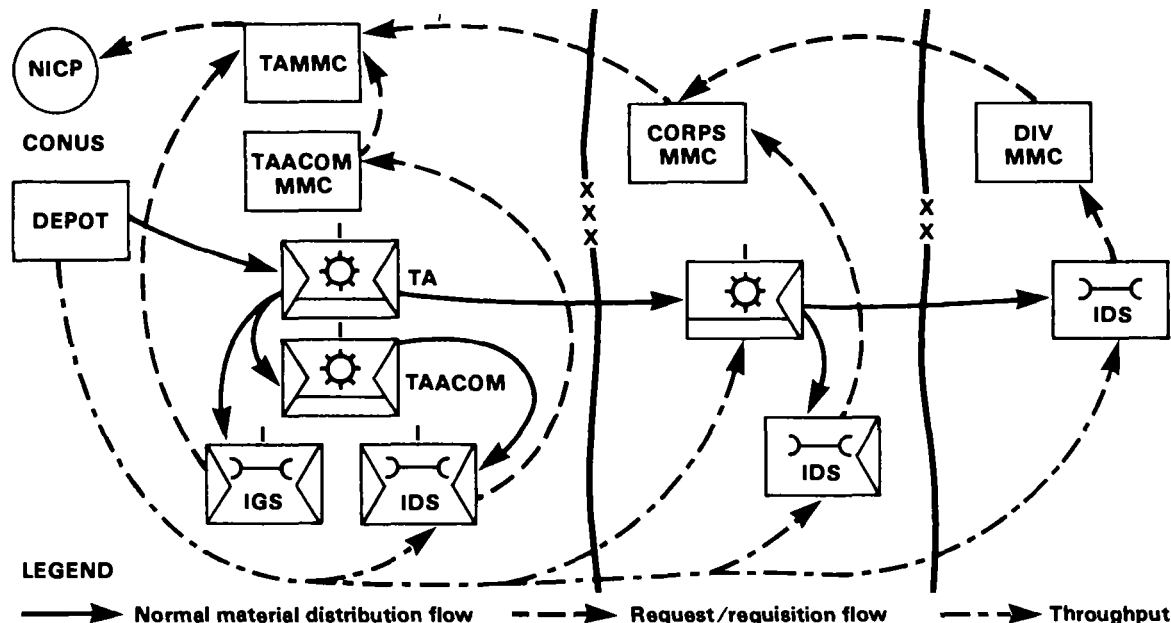


Figure 8-3. Requisition and Supply Flow of Non-ALOC-Delivered Class IX

Requirements for combat-essential Class IX items flow through the TAMMC before being passed to the NICP. The TAMMC may have visibility of in-theater assets which can be issued to expedite the repair process. Otherwise, the TAMMC is bypassed.

Figure 8-3 shows the requisition and supply flow of non-ALOC-delivered Class IX supplies in wartime. Figure 8-4 shows the requisition and supply flow of Class IX supplies in support of ALOC units in wartime.

DIVISION OPERATIONS

DISCOM forward support maintenance elements are the Class IX supply source for

division units operating in the brigade area. They carry that part of the division ASL required to provide Class IX support to their customer units and to make repairs which they perform for customers. Most of the items on the ASL of these elements are high-demand items which can be easily transported. If these forward IDSM elements cannot issue items, they send the requests to a rear maintenance element operating in the DSA or to the DMMC. A rear IDSM element maintains that portion of the division ASL not carried by the forward elements.

Communications-electronics repair parts are stocked by the signal battalion and the IDSM elements. DISCOM medical elements stock medical repair parts and are resupplied

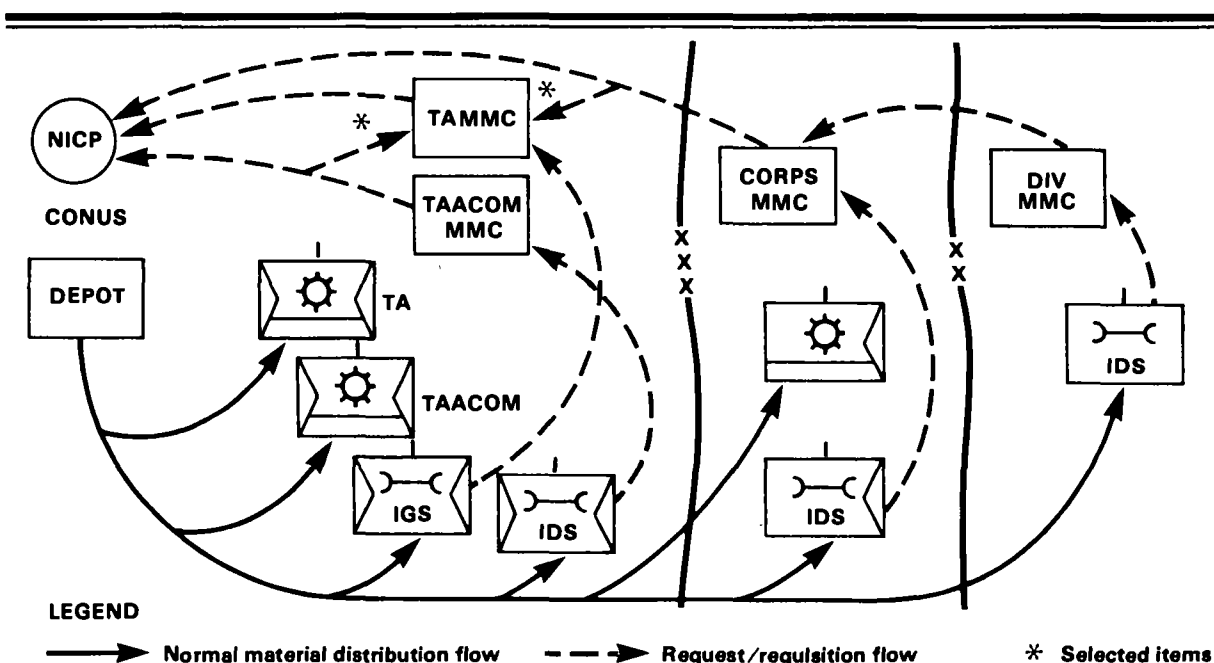


Figure 8-4. Requisition and Supply Flow of Class IX in Support of ALOC Units

through medical channels, specifically by the medical supply, optical, and maintenance unit at corps level. Aviation repair parts are stocked in the PLLs of the maintenance elements of the division aviation brigade (AVUM level) and in the ASL of the division aircraft maintenance company (AVIM level). Missile parts are stocked by the DISCOM missile maintenance element.

The DMMC is the manager of repair parts in the division (except in the light infantry division where repair parts are managed by the DISCOM maintenance battalion and AMCO). It designs and manages the division Class IX inventory and directs issues from it. It places requisitions for resupply with the COSCOM MMC.

CORPS AND COMMZ OPERATIONS

In peacetime, in a theater in which there is an established US force structure, intermediate (DS)/AVIM maintenance units at all levels routinely receive Class IX replenishment direct from CONUS through the direct support system. Requisitions are placed by DMMCs and nondivision intermediate (DS)/AVIM maintenance units on the COSCOM and TAACOM MMCs. These MMCs direct in-theater issues to fill high-priority and NMCS requisitions. They place other requisitions directly with CONUS NICPs. NICPs direct CONUS depots to fill the requisitions, and the items are shipped directly to the original requisitioner by air or surface.

Both COSCOM and TAACOM intermediate (DS)/AVIM units and GS repair parts supply units maintain a specified level of combat ASL items. Additionally, PWRMS Class IX supplies are stored in both COMMZ and corps facilities. They serve as the source of supply during the initial stages of war

until sufficient quantities of Class IX items are being received from CONUS. These PWRMS items are controlled during peacetime by the TAMMC.

During the transition to war, the PWRMS is released by the TA commander to the corps and TAACOMs and becomes the source of supply for theater DSUs and GS supply units. Class IX supply to ALOC units continues as in peacetime. Concurrently, the TAMMC calls forward CONUS war reserves. For surface-delivered Class IX, the supply base for IDSM units shifts from CONUS to COSCOMs and TAACOMs. Division and nondivision corps units receive the bulk of their Class IX surface-delivered supplies from COSCOM IDSM units. COMMZ units are supplied by TAACOM IDSM units. DSS procedures for surface-delivered Class IX items continue for a smaller percentage of shipments.

The Class IX wartime system is established when sufficient quantities of surface-delivered supplies are being received in theater. The GS bases of supply are the COSCOMs and TAACOMs for surface-delivered supplies and CONUS for Class IX items in support of ALOC units.

Maintenance units provide direct support to using units in all command areas of the theater—division, corps, and COMMZ. In addition to repair-and-return, normal supply issues, reparable exchange, and operational float procedures are followed.

MAINTENANCE IN AN NBC ENVIRONMENT

Because of the demand for and priorities placed on decontamination unit services,

using units will decontaminate their own equipment within their capabilities. Equipment turned over to maintenance personnel must be as free of contamination as the using unit can make it. Using units should establish SOPs for recovery, handling, and decontamination of their own equipment.

Avoiding contamination of equipment is easier than decontaminating it. Decontamination is time-consuming, and it can cause corrosion and damage to some types of equipment. Providing overhead cover for equipment and supplies will significantly reduce liquid contamination of such material.

When using-unit personnel are not able to decontaminate equipment, they should mark the equipment with the type and the date/time of contamination. If feasible, they should mark the specific areas of equipment contamination to alert maintenance personnel of the danger. They should also segregate contaminated material. When using units cannot decontaminate damaged or inoperable equipment that is critical to the battle, maintenance personnel should be prepared to repair it.

EQUIPMENT REPLACEMENT

A final, yet major, component of the fixing process is the provision of replacement equipment when damaged or inoperable equipment cannot be fixed and returned to the user within a reasonable time period or when it is destroyed. Replacement equipment is provided either through battle loss replacement of end items (Class VII) or use of the operational readiness float. The operational readiness float is a limited quantity of end

items or major components retained at maintenance unit level. The type and numbers of equipment items in a particular ORF are subject to a number of considerations including item availability. Since combat losses will quickly deplete ORF assets, it is not likely that ORF will figure prominently in replacement after the first few days of hostilities or until the situation stabilizes and ORF stockage becomes affordable.

To ensure the most effective use of end items, these items are normally command-controlled. This process provides the commander, from battalion to corps, the ability to distribute critical replacement items to units that can influence the battle. Battle losses, uneconomically repairable items, and economically repairable critical items for which an ORF item is not available are reported through dual channels—supply (G4) and command (G3). This permits the commander to stay apprised of subordinate command operational status. He can then direct distribution of critical weapon systems. This permits him to weight the battle by providing support to the tactical unit most critical to the success of his mission.

Replacement procedures depend on whether an item is command-controlled. If the item is command-controlled, the requirement is passed through command channels until approved for issue. Then it is sent to that echelon MMC. Non-command-controlled items are processed through logistics (MMC) channels. The issue of weapon systems follows the normal distribution route: TAACOM storage site to corps heavy materiel supply company to issuing DSU to designated unit. If the item is a WSRO-controlled weapon system, marrying the item and the replacement crew is a major consideration. The location—whether brigade support area, division support area, or heavy

materiel supply company—may vary among systems and with the factors of METT-T. However, the corps and subordinate organizations SOPs should provide distribution guidance to the MMC and MCC.

SALVAGE—CAPTURED AND FOUND MATERIEL

The tremendous litter of the battlefield is a potential source of materiel for friendly use. The collection and processing of such materiel are very closely tied to services, supply, and maintenance functions. The process involves all units on the battlefield because they all have a responsibility for reporting or turning in captured and found materiel. The end product of the captured and found materiel process may well be salvage or scrap. The value of the system is the materiel that is converted to use before it becomes scrap or is otherwise discarded.

Generally, there are two types of materiel involved in the process. They are our own equipment and materiel that has been found after having been lost or abandoned and enemy materiel that has been captured or found. Both have tremendous potential for use and may relieve the burden on our own transportation and supply systems. They can be made to materially affect the course of battle.

Our own materiel which has been found after having been lost or abandoned has the greatest potential for reuse. Finding units report it or turn it in to salvage or maintenance collection points in the brigade and division areas. Most US equipment, particularly major end items, will be turned in to

maintenance collection points. The maintenance units inspect it and make decisions regarding repair or further evacuation. If forward maintenance units can repair equipment quickly, they can put the equipment back into the supply system. The DMMC is asked for disposition instructions. The DMMC may direct that the repaired item be placed in the maintenance unit ORF, turned in to a supply unit, or evacuated to corps facilities. Other US materiel may be turned in to division supply unit salvage collection points. There the materiel is identified and classified and reported to the DMMC for disposition instructions.

Captured or found enemy materiel is treated much the same way. While it is not as easily put to use as is US materiel, it still has great potential resource value. Even mechanical equipment, which is difficult to repair because of a lack of parts, may be put to use. An obvious example is trucks which may simply have been abandoned and require little or no repair. Nonmechanical materiel may also be converted to use. Examples are fuels and subsistence items. Once checked by petroleum laboratory personnel, fuels can be used immediately. After undergoing veterinary inspection, subsistence can be used to feed EPWs and, in many cases, the civilian populace. Such use of enemy materiel conserves our own resources.

Correct decisions regarding the use of captured and found materiel are dependent upon common sense and informed judgment at all levels. Materiel is used locally or evacuated rearward for more informed decisions. Mechanical equipment is normally handled through maintenance channels where it can be inspected, perhaps repaired, perhaps cannibalized, or evacuated. Other materiel is turned in to salvage channels.

Some materiel requires expert judgment before it goes into either maintenance or salvage channels or is otherwise disposed of. Examples, in addition to those already cited, are—

- Enemy materiel is reported through intelligence channels.
- Explosives require examination by EOD elements.
- Toxic agents are reported to NBC elements.
- Medical materiel is reported through medical channels.

Captured and found materiel flows rearward when it cannot be used at a specific echelon. The ultimate destination for Class

VII and IX items is a collection and classification company in the corps rear or the COMMZ. This unit will further classify materiel. It may disassemble end items and components and return usable parts, components, and assemblies to maintenance or supply channels. Residue may be disposed of by property disposal elements operating in the theater.

The guiding principle in handling captured and found materiel is that it has potential for use and can conserve other resources. The process requires good judgment for proper disposition at each echelon. Materiel must be reported through materiel management channels so that visibility is maintained and informed disposition decisions can be made.

Tactical success on today's battlefield demands that equipment be maintained, recovered, repaired, or replaced as quickly as possible. Good maintenance practices, forward positioning of maintenance units, sufficient stocks of repair parts and replacement equipment, and clear priorities for recovery and repair are vital. Likewise, sound theater policies on repair and evacuation and sufficient theater repair and replacement facilities contribute greatly to battlefield success.



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CHAPTER 9

Moving the Force

This chapter is about moving personnel, equipment, and supplies to sustain operations and about moving forces which execute those operations. The movement function is critical on the AirLand Battlefield; an environment that will be characterized by a rapid tempo of nonlinear operations; wide dispersion of forces; the need to concentrate rapidly for battle and disperse quickly; and the need to conduct close, deep, and rear operations simultaneously within the framework of the battle.

The movement function goes far beyond the physical movement of personnel and materiel. It involves all the elements of moving forces and their logistics requirements to the locations required by operations. Some of the components of movement are the physical transportation modes, the process of planning and controlling movement over the entire battlefield network, allocating transportation resources, and prioritizing movement.

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Movement is inherent in all the CSS functions as it is in the combat and combat support functions. It cannot be looked at in isolation; it is the one element that ties sustainment and all other battlefield operations together. Movement, from the wider viewpoint, is a major concern of the S3/G3. It is he who orchestrates the maneuver of the force; all other movement simply supports force maneuver. The S4/G4 and the CSS operators are primarily concerned with the detailed planning and execution of CSS movement and with assisting in the execution of tactical movement.

THE MOVEMENT CONCEPT

The task of transportation is to ensure that all required personnel and supplies are delivered to the point of need on time. The transporter operates under the concept that all his actions are focused on maximizing the effectiveness of his assets in an effort to mitigate the inhibitions that transportation, like all logistics functions, places on the maneuver and combat support commander.

Transportation doctrine is based on

several principles. They are forward support, consolidation of transport resources, centralized control of decentralized operations, and reliance on flexibility and efficiency.

Forward support by other CSS elements is made possible by an effective transportation system. Ammunition is brought forward to BSAs so that the fighting elements have sufficient quantities required by high firing rates. Far forward delivery of ammunition

and fuel allows the maneuver commander to seize tactical opportunities and retain the initiative. His logistics "tail" is shortened, allowing him greater mobility and freedom of action.

The transporter evacuates disabled equipment from forward sites to rear maintenance locations so that it can be returned to the fight rapidly. Air transport delivers critical repair parts and components to even the most forward UMCPs, allowing repairers to return weapon systems to the battle quickly. Air and ground ambulances evacuate wounded soldiers from battalion aid stations and even from forward company areas, saving lives and speeding return to duty. Both Air Force and Army aircraft carry critical supplies such as rations, water, fuel, and ammunition to units operating at and even forward of the FLOT.

In short, all forward support is dependent on fast, reliable transportation. Forward oriented transportation is a combat multiplier in that it allows the commander to concentrate all his forces on the enemy. Transporters allow him to be relatively free of his logistics "tail."

CONSOLIDATION OF TRANSPORT RESOURCES

All units are allocated, in addition to their mission equipment, *only* those cargo carriers required to carry basic loads and mission-essential equipment. This conserves transportation resources and improves fighting force mobility. Most combat and combat support units are fully mobile and can move with organic equipment. CSS units, not normally having to move as frequently, are only partially mobile, depending on transportation units to move them when they relocate. The preponderance of transport resources

can then be consolidated into truck, helicopter, or water transport companies, the working elements which are tasked by movement control organizations at each echelon described below. By such allocation, the most efficient use of resources is made, and the limited resources can be more easily controlled and effectively used.

CENTRALIZED CONTROL OF DECENTRALIZED OPERATIONS

The transportation concept is further based on centralized control of decentralized operations. This requires a focal point for transportation at all echelons. That focal point, whether it be an individual or a unit, must maintain a constant awareness of requirements and capability. The division movement control officer, the corps MCC, and the TAMCA must maintain the status of transportation assets and, through close coordination, project future requirements.

The primary task of these control elements is the development and supervision of the execution of the movement program which is developed in close coordination with the materiel management element at each echelon. While the movement control element remains aware of the total transportation picture, it must simultaneously delegate authority to subordinates to task local transportation assets in order to satisfy short-notice, changing needs. For example, the corps MCC retains the overall status of corps transportation capabilities and requirements, but also gives its dispersed movement control teams the authority to commit transportation assets within the area in which they operate. Decentralization of execution enhances the flexibility to meet local emergencies and to reprioritize support rapidly to meet revised plans and requirements.

RELiance ON FLEXIBILITY AND EFFICIENCY

Transportation assets routinely will be assigned GS and DS missions. It will not be unusual for truck companies or helicopter elements to be placed temporarily in direct support of, or even attached to, other CSS elements. For example, truck companies normally should be placed in direct support of corps GS ammunition supply companies and GS petroleum supply companies. They may be attached to TAACOM area support groups with the mission of clearing sea and air ports of personnel, equipment, and supplies. They may be assigned to support other service, allied, or host nation support missions.

Truck company elements can be used to operate a rapid delivery, scheduled hub and spoke system for accelerated delivery of less-than-truckload shipments between suppliers and customers and between supply facilities. Such a system can relieve the customer of formally requesting transportation support. It also results in a much shorter order-ship time and provides more responsive support to suppliers and eventual users.

Transportation must also be efficient. Maximum use must be realized from scarce resources. Although terminal transfer operations are required in some situations, the preferred method of transport is throughput whereby materiel is moved from source, whether it be a GSU in the corps or a port in the COMMZ, to user. Ammunition will be carried from CSAs deep in the corps rear all the way to ATPs in brigade support areas. Cargo is packed, where feasible, in unit packs, and containerization is used to avoid duplication of handling.

Transport equipment travels empty only when it cannot be avoided. Only those carriers necessary to haul projected loads are assigned to the mission. Shipments to a single consignee or destination are consolidated by vehicle and convoy. Single vehicle drivers and convoy leaders are sure of destinations even when tactical developments cause changes. Movement controllers and highway regulators ensure maximum, effective use of existing road networks. Route interdiction is reported promptly.

MOVEMENT FUNCTIONS

The traditional transportation functions are mode operations, movement control, and terminal operations. All three are integrated into an effective effort to support the combat support and maneuver forces.

MODE OPERATIONS

Army transportation units perform truck, rail, air, and water movement functions. While all of these mode operations may not be performed in any one theater, the Army

maintains the capability to execute all of them.

Motor

Motor transport provides the connecting links between receiving units and major aerial and ocean ports, major supply centers, and rail and inland waterway terminals. After air, motor transport is the most flexible mode. It is an all-weather mode which can be used over any trafficable terrain, including

off-road. Equipment operated includes cargo trucks and semitrailers, fuel tankers, and heavy-equipment transporters. HETs are scarce, vital assets in the delivery of heavy equipment, mainly tanks, to the battlefield and in evacuating them to maintenance facilities when they cannot be fixed forward.

At division and below, motor transport support is organic to the using echelon. At corps and above, it is generally provided on an area basis. Corps and TAACOM motor transport units respond to taskings of MCTs in the area or to the units to which attached.

Rail

The most efficient method of hauling large tonnages of materiel by ground transportation is by rail. Particularly in developed theaters, the Army will normally depend on the host nation to provide rail transportation. However, the Army retains a limited railway construction and repair and railway operating capability to augment host nation support and to provide those capabilities in theaters where host nation support is not available or is not considered capable or reliable. Rail transportation is limited by existing rail networks and is especially susceptible to interdiction.

Air

Air is the most flexible of transportation modes. Wide-ranging CSS needs within a theater will require Air Force and Army airlift assets for sustainment of forces. While motor transport normally will be the primary means of support for combat operations, air lines of communication become increasingly important as the intensity, depth, and duration of operations increase. Airlift relieves combat units from total dependence on ground lines of communication which can become congested or interdicted and allows

rapid support to the maneuvering force with minimum regard to terrain peculiarities. It also makes possible rapid resupply of critical items over extended distances, close to or directly to forward employed units.

There are, however, limitations to the capabilities of airlift. Airlift aircraft are affected by changing weather conditions and must have air corridors relatively free from enemy air defense weapons and enemy combat aircraft. Additionally, weight and size limitations for airlift often require a large number of airframes in relation to the support provided. Special on-load/off-load equipment may be required for air-landed missions. Rigging equipment and specially trained personnel will also be required for airdrop or sling-load operations.

Airlift within a theater of operations is provided by both Air Force and Army airlift assets. As a rule, Army airlift assets—medium (CH-47) and assault (UH-60) helicopters—are provided to the movement manager at the division and corps through a habitual relationship (for example, operational control or direct support) between the DISCOM or COSCOM and the appropriate aviation brigade. At echelons above corps an aviation group provides airlift assets. USAF theater airlift assets are not normally controlled by Army movement managers, but rather provide airlift support to all services within a theater of operations through a process of allocating sorties on a routine basis to other services. Requirements of an emergency nature are requested and further coordinated through Army command channels to Air Force airlift control elements.

Airdrop is a primary field service which will be required at the onset of hostilities. Although classified as a field service, it is a vital link in the transportation system. As

such, it must receive careful attention from transportation planners as well as those involved with field services. Airdrop operations extend the air lines of communication and become increasingly important as the combat intensity, depth, and duration of the battle increase. The force structure required to execute airdrop operations is highly specialized and, when possible, should be in place, ready to provide this critical field service when hostilities erupt.

Airdrop support units are allocated to the corps and theater with only the airborne division having organic airdrop support. All other divisions must rely on the corps and/or theater for airdrop resupply support. This is especially true for the light divisions which will experience increased reliance on airdrop for resupply.

Airdrop can serve as a combat multiplier by providing the flexibility required in the supply and transportation systems. This becomes even more apparent when a nuclear, biological, and chemical environment is superimposed on the AirLand Battlefield. Airdrop will provide the speed and flexibility to bypass contaminated areas or areas of enemy concentration.

As a rule, airdrop of supplies and equipment is a joint operation of the Army and the Air Force.

Water

In the theater, commanders use existing ports and host nation stevedore and watercraft support first when possible. Otherwise, Army units are used.

Transportation water terminal service and transfer units or host nation/contract resources unload military materials and personnel within ocean terminals; inland

water terminals and transfer points; motor, rail, and transfer sites; beach sites and/or unimproved facilities; LOTS sites; and in shore-to-shore operations. The cargos are sorted by destination and loaded on the appropriate mode.

Transportation watercraft units or host nation/contract assets provide water transport for military materials and personnel within water terminals, along inland waterways, and along theater coastlines. They will also provide and operate watercraft for logistics over-the-shore sites to move cargo from ship to shore.

MOVEMENT CONTROL

Movement control is one of the three transportation missions. Within that context, it applies generally to the movement of materiel (chiefly supplies) and personnel. From the broader viewpoint, movement control implies the total movement effort to include the movement inherent in maneuvering combat elements throughout the battlefield. Therefore, movement management is a major concern of the G3 as well as the G4. The G3 plans tactical movement; the G4 plans CSS movement. Unless the two are planned concurrently, the best battle plans can be thwarted by road congestion and the inability to deliver supplies and replacements to maneuver forces and to evacuate casualties and inoperable equipment. Maneuver elements must nearly always be given priority although CSS traffic is essential to their success. Planning and management of movement, then, requires the closest coordination among and between the commanders and staffs of many and varied organizations.

Consider, for example, a scenario in which one division moving to an attack moves through another division in a passage

of lines. If possible, the attacking division will move along multiple routes to shorten the pass time and for dispersion. The stationary division must maintain its normal internal traffic, its maneuver and combat support elements constantly in movement. Sizable corps engineer and artillery units will also be in movement in the stationary division's zone. Support elements from both divisions will be continually moving supplies and replacements forward and evacuating equipment and casualties rearward. Corps transportation units will move forward and backward in the same zone. Potential choke points such as bridges, intersections, and damaged or blocked roads will further hinder movement.

The orchestration of the entire movement network in this one division's zone would be a formidable task. The operations and logistics staff elements of all commands from battalion to corps would be involved. Division and corps military police would be taxed to provide traffic circulation control. Corps movement control teams and highway regulating point teams would be needed to direct CSS movement, divert cargo, and otherwise assist in management and control.

In this example, the G3 is the officer responsible for the overall operation. He allocates road space, assigns movement times, and establishes priorities for road use. He is assisted by the G4 and by other staff assistants. He tasks the military police and

other assets with the traffic circulation tasks which support his plans.

The preceding scenario is intended to demonstrate the magnitude and complexity of the movement management function in supporting battle. A smaller slice of that is the transportation structure's mission of administrative movement control, a difficult process in itself. At brigade and below, movement control is the responsibility of staff officers assigned to the S4's staff. At division, movement control is shared by the DISCOM movement control officer, who is the tasker of division transportation assets, and the division transportation officer. The DTO is the division staff transportation planner and the coordinator with external transportation agencies. In the corps, the MCC provides movement control and highway regulation services; in the theater army these services are provided by the TAMCA.

TERMINAL OPERATIONS

In addition to ocean terminal operations, transportation units (or host nation/contract resources) are employed to transfer cargo from mode to mode at inland land, air, and waterway terminals. Cargo transfers are made only when necessary, the preferred method being to haul from source to destination on one conveyance. Terminal transfer operations are conducted by host nation resources where possible.

TRANSPORTATION OPERATIONS

This section of the chapter identifies principal transportation planners and operators throughout the theater. It also

describes how transportation functions are performed. Figure 9-1 depicts transportation operations in the theater.

BATTALION

Combat support and maneuver battalions are provided with the load-carrying vehicles required to carry their basic loads. Cargo vehicles are used to pick up supplies in the brigade support area and to resupply the battalion companies.

BRIGADE

The brigade has no transportation assets. It depends on the MSB to provide transportation. The FSB companies travel to the DSA to pick up some supplies. Others are

routinely delivered to the BSA by the MSB and corps transportation companies. Ammunition is delivered to the ATPs by corps carriers. Brigade requirements for other than resupply transport are met by the MSB transport company or by corps assets. Critical end item components and repairers will be brought into the BSA by division or corps aviation. Other division units operating in the brigade area are similarly supported. Division engineer units normally are provided support for Class IV by corps truck

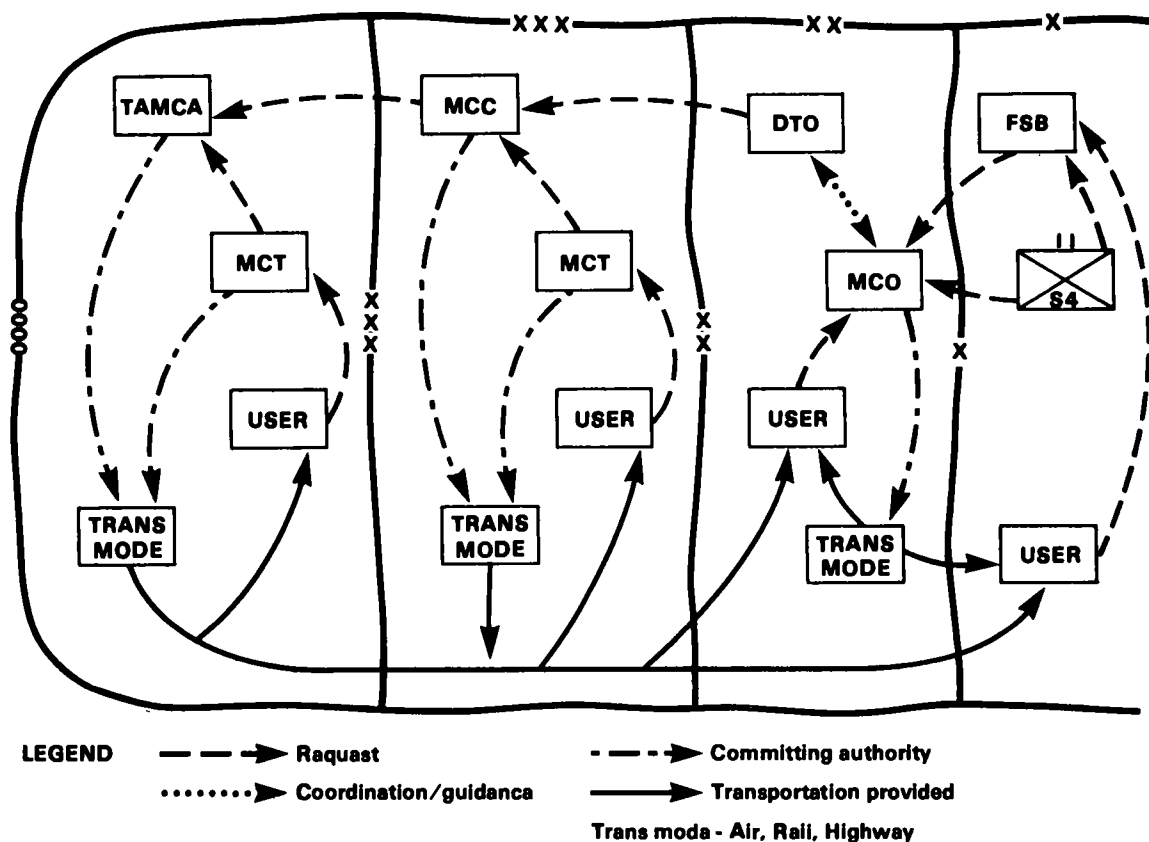


Figure 9-1. Transportation Operations

units. Corps artillery and engineers operating in the brigade area are also supported by corps truck units.

DIVISION

At division level, transportation becomes a multifunctional operation since the movement control function is added. The DTO is the principal transportation staff officer. As a special staff officer, he provides transportation advice and planning assistance to the commander and staff. He provides the DISCOM MCO guidance and assistance on such matters as division movement priorities, unit movements, movement requests, and MSR use. He is the division link with the corps MCC, particularly for division movement requirements in excess of organic capability.

The DISCOM MCO is the movement coordinator and control officer within the division. He coordinates movement with major units of the division. He maintains status of requirements and assets and tasks the MSB truck company.

The MSB truck company is the only ground transportation unit organic to the division. Requirements in excess of its capability are met by corps assets. CSS missions are routinely flown by the command aviation company of the aviation brigade. Delivery of low-density, high-cost munitions and of high-cost end item components is a suitable mission for division aviation assets. Emergency air resupply missions to division units are performed by division, corps, and Air Force units.

CORPS

Movement Management and Control

The MCC has primary responsibility for planning, programing, and regulative

actions essential to transportation movement management and control in support of the corps. It maintains liaison with transportation elements of other US forces and with allied and host nation transportation agencies. It commands and supervises attached or assigned units and teams engaged in movement control and highway regulation. In addition, the MCC implements the corps movement program prepared in coordination with the materiel management center using the DA Movement Management System, which prescribes what has to move where and when. Programed supply movements ensure efficient use of transportation assets and a smooth flow of material to the DSA and BSA.

After the materiel is delivered, retrograde items are loaded for the return trip. The interface between the corps MCC and division MCO ensures that supply movement requirements are determined, transportation arrangements are made, and coordination is made with appropriate activities. Priorities established by the corps commander govern the movement of personnel and materiel of interest to the corps. If originating in areas not under the corps commander's control, such moves are executed by the appropriate agency of the TAMCA.

The TAMCA coordinates personnel and materiel movements from the COMMZ into the corps area with the corps MCC, and retrograde materiel movements from the corps into the COMMZ are coordinated by the corps MCC with the TAMCA. Particular attention should be placed on coordinating pipeline offtake points for transfer of product to railcars or trucks.

Centralized control of corps logistics transportation is essential to ensure that the commander gets the supplies where and

when he needs them, while decentralized execution ensures that local transportation needs are expeditiously met. That control is exercised by attaching and detaching units between corps support groups.

Movement control teams and highway regulating point teams are placed at support group headquarters and controlled routes to serve supported units in that area. When necessary, MCTs and HRPTs are attached to the divisions. An MCT provides the critical link between the supply point, the mode operator, and the receiving unit. MCTs also maintain coordination with other MCTs so that inter-area shipments are tracked. The number of units to be supported and the size and complexity of the transportation network will determine the number of MCTs. The number of MSRs and their entrance or exit points to be regulated will determine the number of HRPTs.

A major function of the MCC is to plan and coordinate the movement of major units of the corps in supporting the corps commander's tactical maneuver scheme. The commitment of the corps reserve division or brigades will compete for road space with the normal resupply movements and will require route prioritization. Monitoring the move will require close coordination with the corps G3 and DTO/MCO/G3 of division sectors through which the organization must pass.

Motor Transport

In the COSCOM, company-sized motor transport units consist of command transport, heavy equipment transporter, medium truck, and light-medium truck units. Other transportation units, such as terminal transfer, terminal service, watercraft, and railway units may be attached as required. Host

nation support and contracted organizations may also be available.

In the COSCOM area, movement of supplies consists chiefly of line-haul operations from support groups forward to the division support area. High-usage and heavy-tonnage ammunition, for example, is delivered from the corps storage area to the ATP. Barrier materials will also be delivered by corps transport to barrier sites in the brigade area.

The division depends on support from COSCOM transportation to provide heavy-equipment transporters whenever the capabilities of division HETs are exceeded. Corps HETs move tracked vehicles forward to the DSA to replace combat losses and to evacuate reparable.

Movement of supplies includes cargo transfer operations. For example, if supplies are being moved by rail to a given point and by truck from that point forward, a cargo transfer company must operate a cargo transfer point to transfer the cargo from rail cars to trucks.

Motor transport units may have to move entire headquarters or assist in movement of units. Most units in the COSCOM area, for example, are not 100-percent mobile and cannot move in a single lift without assistance. Command transport and light-medium truck companies normally are placed in direct support of the corps and COSCOM headquarters.

Air Transport

Normally, ground lines of communication will be the primary means of support for combat operations. However, air lines of communication have become increasingly important—even essential—for the routine

distribution of scarce high-lethality munitions (Copperhead, HELLFIRE, air defense missiles, nuclear warheads, and chemical munitions) as well as the distribution to DSUs of high-value, normally low-density repair parts such as printed circuit boards, transmissions, and engines (including reparables returned to GS maintenance in the COMMZ) which are needed to return critical systems to the battlefield. Corps commanders should routinely allocate sufficient sorties for these requirements. Aviation leaders and staffs should recognize such requirements and build the capability to execute such missions. Similarly, suppliers should realize that this airlift support exists and request its use.

CSS airlift capability is normally the MLH companies in the corps aviation brigade, but assault helicopter units (UH-60) can play an important role. The corps area will normally contain small austere airfields that handle intratheater Army and Air Force aircraft. The corps movement managers receive advance notification from the theater army movement managers of incoming Army cargo and personnel. They prepare the appropriate movement programs and make necessary coordination for the transfer of cargo or personnel to either Army or Air Force intratheater aircraft or other modes of transportation. The corps MCCs receive requests for transportation from users within the corps area and any transportation requirements that cannot be satisfied with organic division assets. The corps MCC should also establish the "dedicated" systems described above for distributing high-value munitions and reparables.

Air support in a low-intensity conflict will be critical to combat units. The majority of low-intensity conflict operations will be con-

ducted in areas which have poorly developed transportation systems. Full use of corps and EAC aviation assets will be required to meet combat unit needs for the replenishment of critical supplies.

On 9 April 1945 at the Garmen town of Crailsheim, a US armored spearhead was pinched off. Twenty-two supply trucks failed to reach the encircled unit. Thirty-four C-47s of the IX Troop Carrier Command took off from near Paris and flew through flak, landing at Crailsheim with 80 tons of gasoline in jerrycans, 19 tons of ammunition, and 2.7 tons of K Rations. The Germans placed mortar fire on the airstrip destroying one C-47. The remaining 33 planes took out 42 wounded, while only four planes received major damage. The next morning 16 more C-47s delivered 16 tons of .50 caliber ammunition, 15.7 tons of 105 mm shells, and 11 tons of K Rations. The armored unit fought its way to the main body of American forces.

Portions of allied and host nation airlift capability may also be designated for movement of US personnel and cargo, if required, to support the corps mission. If host nation support is established by bilateral agreement, the theater army movement control agency will coordinate support.

THEATER ARMY

In a theater of operations, the Joint Transportation Board allocates transportation resources to component commands according to priorities established by the theater commander.

The theater army movement control agency, assigned to the theater army headquarters, manages the use of the Army's

allocated transportation resources. The TRANSCOM provides the assets, theaterwide, that are to be managed by the TAMCA. Since in most theaters the Army fights as part of both a joint and combined force, the TAMCA also must coordinate with allied transport authorities and the host nation(s) within which the COMMZ lies. Army movement programs must be integrated with allied and other services requirements so that rail, inland waterway, and other indigenous transport resources can be used effectively. This is the TAMCA's most important function. The execution of the movement program can be decentralized with the TAMCA intervening only in exceptional cases. It uses the DAMMS to monitor the execution of the movement program and to anticipate the requirement to alter it.

The TAMCA performs movement control and highway regulation through its MCTs and HRPTs. These teams are located in the vicinity of air and water terminals to coordinate the movement of supplies from shipper to receiver, arrange transport, and issue convoy clearances.

MCTs are assigned to the TAMCA and are located near high-density passenger and cargo movement areas such as TAACOM storage areas, area support groups, major air and ocean terminals, and other activity centers where movement control and highway regulation are required. These teams function as field representatives of the TAMCA, providing interface with the transporter, other MCTs, the shipper, and the receiver. The teams vary in size and capability, depending on the movement requirements at their location.

At aerial ports of debarkation, where high-priority cargo, passengers, and unit

equipment arrive in theater, an air terminal movement control team will—

- Arrange for clearance of Army cargo and personnel.
- Coordinate arrival of Army cargo and personnel.
- Arrange transportation for return of retrograde cargo.
- Provide liaison with Air Force elements and host nation agencies operating at the airfield.

This team is normally assigned to the TAMCA, but may be assigned to the corps MCC when the corps is employed in independent operations and operation of an air terminal is a corps responsibility.

Highway regulation in the COMMZ is carried out by the highway traffic division of the TAMCA and subordinate HRPTs. The lack of road space during wartime places a severe burden on the traffic regulators. This organization uses available roadnets to accommodate combat unit movements, unit and CSS convoys, all kinds of allied or host nation vehicles including civilian vehicles, and often refugees. Use of controlled highways are scheduled and regulated to obtain maximum use. HRPTs operate at major points of access or departure along routes over which highway regulation is exercised. They monitor movement of authorized traffic, report convoy progress and road conditions, and make diversions to truck convoy routings. They also coordinate recovery of disabled vehicles along their assigned routes.

In some theaters, highway regulation in the COMMZ is a host nation responsibility. The highway traffic division of the TAMCA

coordinates and maintains liaison with appropriate host nation movement agencies. In the corps area, highway regulation and movement control is closely coordinated between the corps MCC and host nation agencies, and colocation of these activities is the rule rather than the exception. The corps commander must have sufficient control over road space allocation to allow the freedom necessary to permit unencumbered tactical movement. In the division area, highway regulation and movement control is the sole responsibility of the division commander.

In the theater, transport support of military forces is normally a national responsibility. Commanders need to coordinate use of ports, airfields, rail lines, highways, and pipeline with the host nation.

The transportation command is a functional command assigned to the theater army. In a theater of operations, the TRANSCOM provides theaterwide transportation mode operation. Mode operation is accomplished through subordinate transportation headquarters, with the transportation battalion headquarters (motor transport, rail, terminal service) being the principal operations supervisor. Units assigned to the TRANSCOM provide terminal operations functions (which include terminal services, watercraft, and cargo transfer) and motor and rail transport support. Theater aviation (MLH, HLH) assets should be made available routinely for CSS airlift missions.

The communications zone will normally have main or intermediate operating bases (airfields) capable of accepting large intertheater aircraft. While the Air Force will control the air terminals, the Army may also use them for their intratheater aircraft.

The theater army movement managers receive advance notification of incoming

Army cargo and personnel. They prepare the appropriate movement programs and coordinate for the transfer of cargo or personnel to either intratheater aircraft or other modes of transportation. They also receive requests for transportation from users within the theater army area and any transportation requirements that cannot be filled by corps movement managers.

Ports of debarkation into the theater, both aerial and ocean terminals, are critical facilities within the transportation system. Through these facilities must flow the logistics support from outside the theater. However, the massive tonnages of ammunition, petroleum products, and heavy war materiel move through ocean terminals. Personnel and high-priority air transportable materiel enter through air terminals.

The use of developed ocean terminals and their adjoining commercial transportation nets is highly desirable, and they are used to the maximum extent possible. However, the use of developed ocean terminals may be interrupted or denied and logistics-over-the-shore operations will be required.

Terminal service and watercraft units load, discharge, and transport cargo in ports, LOTS operations, and inland waterways. Motor transport and railway units operate transportation equipment over land. Army aviation units provide combat service support airlift. Cargo transfer companies transfer cargo between modes at air, rail, and motor terminals. TRANSCOM units operate in ports of debarkation, both sea and aerial, to clear material and personnel from these critical points and distribute them over lines of communication.

Operation of railway transport in Europe is essentially a host-nation-provided service. Western Europe has a sophisticated modern

railway system. In that area of the world, host nation systems can not be realistically duplicated by US Army railway operation and maintenance units.

In undeveloped areas, however, employment of US Army railway units to support the theater of operations is a real probability. If host or allied nations cannot provide railway service, railway units may be brought in to operate the system. They may have a role in building a rail network as part of a "nation building" program.

Transportation railway units consist of railway battalion headquarters, train operating companies, equipment maintenance companies, and engineering companies.

Line-haul units of the TRANSCOM normally operate from ports of debarkation forward to theater army area command and corps support groups. These units support the transportation requirements of the TAACOM

and may also support the transportation brigade of the COSCOM.

Throughput of supplies is accomplished whenever possible to expedite movement of supplies forward to where they are needed and to eliminate unnecessary handling. However, throughput does not necessarily mean that a container of supplies is moved by a single transportation mode or single vehicle from the port directly to the user. It may be transferred to one or more modes; for example, rail, barge, or trailer, in transit.

The transportation system must be properly force-structured to permit these types of operations. Additionally, the US transportation force structure may depend in part upon or be augmented by host nation truck, rail, barge, or aircraft assets. If so, coordination with host nation or allied agencies must be accomplished and agreements must be concluded between the governments concerned.

Transportation is a factor in virtually every CSS function. It is not simply the total of the load-carrying capacity of mode operators. It encompasses the equally important functions of terminal operations and movement control. Materiel must be transferred from one mode of transportation to another at sea ports of debarkation, rail and airheads, inland waterways, and truck terminals. Air and sea ports of debarkation must be cleared expeditiously to make way for follow-on cargo. Sustaining supplies and replacement personnel will flow over the same routes required for maneuver units and will compete for limited main supply routes in the theater.



Glossary

A

acct — accounting
ACofS — Assistant Chief of Staff
ACR — armored cavalry regiment
ACS — air cavalry squadron
AG — Adjutant General
AHB — attack helicopter battalion
AHC — assault helicopter company
ALOC — air lines of communication
amb — ambulance
AMC — United States Army Materiel Command
AMCO — aircraft maintenance company
AMEDD — Army Medical Department
APOD — aerial port of debarkation
ASG — area support group
ASL — authorized stockage list
ASP — ammunition supply point
atk — attack
ATLS — advanced trauma life support
ATP — ammunition transfer point
AVIM — aviation intermediate maintenance
avn — aviation
AVUM — aviation unit maintenance

B

BAS — battalion aid station
BDAR — battle damage assessment and repair
bde — brigade
bn — battalion
BSA — brigade support area

C

C2SRS — Command and Control Strength Reporting System
CA — civil affairs
CAC — command aviation company
cas — casualty
CASP — chemical ammunition supply point
cav — cavalry
C-E — communications-electronics
CEB — clothing exchange and bath
chem — chemical
CMO — civil-military operations
co — company
COMMZ — communications zone
COMSEC — communications security
CONUS — continental United States

COSCOM — corps support command
CP — command post
CPOC — corps personnel operations center
CRC — CONUS replacement center
CS — combat support
CSA — corps storage area
CSG — corps support group
CSH — combat support hospital
CSR — controlled supply rate
CSS — combat service support

D

DA — Department of the Army
DAMMS — Department of the Army Movement Management System
DAO — division ammunition officer
DCSLOG — Deputy Chief of Staff for Logistics
decon — decontamination
DISCOM — division support command
div — division
DMMC — division materiel management center
DOD — Department of Defense
DS — direct support
DSA — division support area
DSS — direct support system
DSU — direct support unit
DTO — division transportation officer

E

EAC — echelons above corps
EOD — explosive ordnance disposal
EPW — enemy prisoner of war
evac — evacuation

F

FARP — forward arming and refueling point
FG — finance group
FLOT — forward line of own troops
FM — field manual
FSB — forward support battalion
FSU — finance support unit
fwd — forward

G

G1 — Assistant Chief of Staff, G1 (Personnel)
G2 — Assistant Chief of Staff, G2 (Intelligence)
G3 — Assistant Chief of Staff, G3 (Operations and Plans)
G4 — Assistant Chief of Staff, G4 (Logistics)
G5 — Assistant Chief of Staff, G5 (Civil Affairs)
gp — group
GRREG — graves registration
GS — general support
GSU — general support unit

H

HAWK — homing all-the-way killer

HELLFIRE — Heliborne Laser Fire-and-Forget Missile System/Helicopter Launched Fire-and-Forget Missile System

HET — heavy-equipment transporter

HHC — headquarters and headquarters company

HHd — headquarters and headquarters detachment

HHT — headquarters and headquarters troop

HLH — heavy-lift helicopter

HN — host nation

HNS — host nation support

HQ — headquarters

HQDA — Headquarters, Department of the Army

HRP — highway regulating point

HRPT — highway regulating point team

hrs — hours

HSS — health service support

hvy — heavy

I

IDS — intermediate (direct support)

IDSM — intermediate (direct support) maintenance

IEW — intelligence/electronic warfare

IGS — intermediate (general support)

IGSM — intermediate (general support) maintenance

intel — intelligence

IPB — intelligence preparation of the battlefield

JPO — Joint Petroleum Office

JMRO — Joint Medical Regulating Office

L

LIC — low-intensity conflict

LOC — lines of communication

LOGCAP — logistics civil augmentation program

LOGPAC — logistics package

LOTS — logistics-over-the-shore operations

LRU — line replaceable unit

LSD — landing ship, dock

lt — light

M

MACOM — major Army command

maint — maintenance

MASH — mobile army surgical hospital

MBA — main battle area

MCC — movement control center

MCO — movement control officer

MCP — maintenance collecting point

MCT — movement control team

med — medical

MEDCOM — medical command

MEDDAC — medical department activity

MEDSOM — medical supply, optical, and maintenance

METT-T — mission, enemy, terrain, troops, and time available

MI — military intelligence

MLH — medium-lift helicopter
MLRS — multiple launch rocket system
mm — millimeter
MMC — materiel management center
MOPP — mission-oriented protection posture
MOS — military occupational specialty
MP — military police
MRE — meal, ready-to-eat
MRO — materiel release order
MSB — main support battalion
msl — missile
MSR — main supply route
MST — maintenance support team
MT — maintenance team
MTF — medical treatment facility
MTOE — modification table of organization and equipment
MWR — morale, welfare, and recreation

N

NASP — nuclear ammunition supply point
NATO — North Atlantic Treaty Organization
NBC — nuclear, biological, chemical
NCO — noncommissioned officer
NEO — noncombatant evacuation operations
NICP — national inventory control point
NMCS — non-mission-capable supply
nuc — nuclear

O

OCONUS — outside continental United States
OPLAN — operation plan
op — operation(s)
ORF — operational readiness float

P

PAC — personnel and administration center
P&A — personnel and administration
PAO — public affairs office(r)
pers — personnel
PERSCOM — personnel command
PLL — prescribed load list
plt — platoon
PNL — prescribed nuclear load
POD — port of debarkation
POL — petroleum, oils, and lubricants
POMCUS — pre-positioning of materiel configured to unit sets
PPTO — pipeline and terminal operating
PRB — personnel replacement battalion
PRR — personnel requirements report
PS — personnel service
PSC — personnel service company
PSS — personnel service support
PWRMS — pre-positioned war reserve materiel stock
PX — post exchange

R

RAOC — rear area operations center

rcvy — recovery

RCZ — rear combat zone

repl — replacement

RSR — required supply rate

RTD — return to duty

S

S1 — Adjutant (US Army)

S3 — Operations and Training Officer (US Army)

S4 — Supply Officer (US Army)

S&S — supply and service

SAPO — subarea petroleum office

sec — section

SJA — staff judge advocate

SOP — standing operating procedure

SPO — security, plans, and operations

SPOD — sea port of debarkation

spt — support

sqdn — squadron

SRU — shop replaceable unit

SSI — specialty skill identifier

surg — surgical

svc — service

T

TA — theater army

TAACOM — theater army area command

tac — tactical

TACCS — Tactical Army Combat Service Support Computer System

TAMCA — theater army movement control agency

TAMMC — theater army materiel management center

TDA — tables of distribution and allowances

TF — task force

TFC — theater finance center

TMDE — test, measurement, and diagnostic equipment

TOE — table of organization and equipment

TOW — tube-launched, optically tracked wire-guided

trans — transportation

TRANSCOM — transportation command

trmt — treatment

TSA — theater storage area

U

UMCP — unit maintenance collecting point

UMT — unit ministry team

US — United States (of America)

USAF — United States Air Force

V

V/S — Vulcan/Stinger

W

WHA — weapons holding area

WO — warrant officer

WSM — weapon system manager

WSRO — weapon system replacement operations



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References

REQUIRED PUBLICATIONS

Required publications are sources that users must read in order to understand or to comply with this publication.

FIELD MANUALS (FMs)

100-1	The Army
100-5	Operations

RELATED PUBLICATIONS

Related publications are sources of additional information. They are not required in order to understand this publication.

ARMY REGULATIONS (ARs)

710-2	Supply Policy Below the Wholesale Level
750-1	Army Materiel Maintenance Policies
750-25	Army Test, Measurement and Diagnostic Equipment Calibration and Repair Support Program

FIELD MANUALS (FMs)

1-500	Army Aviation Maintenance
3-3	NBC Contamination Avoidance
3-4	NBC Protection
3-5	NBC Decontamination
3-100	NBC Operations
5-100	Engineer Combat Operations
5-104	General Engineering
8-10	Health Service Support in a Theater of Operations
8-21	Health Services Support in a Communications Zone
8-55	Planning for Health Service Support

9-6	Ammunition Service in the Theater of Operations
9-15	Explosive Ordnance Disposal Service and Unit Operations
9-16	Explosive Ordnance Reconnaissance
9-38	Conventional Ammunition Unit Operations
9-59	Unit Operations for Support of Missile and Air Defense Gun Systems
9-84	Special Ammunition (Nuclear) Direct and General Support Unit Operations
10-13	Supply and Service Reference Data
10-24	Ration Distribution Operations
10-27	General Supply in a Theater of Operations
10-52	Field Water Supply
10-60	Subsistence Supply and Management in Theaters of Operations
10-63	Handling of Deceased Personnel in Theaters of Operations (AFM 143-3; FMFM 4-8)
10-67	Petroleum Supply in Theaters of Operations
10-280	Mobile Field Laundry, Clothing Exchange, and Bath Operations
11-23	Theater Communications Command (Army)
12-3-1	Separate Company/Battalion Level Personnel and Administrative Doctrine
12-3-2	Division/Separate Brigade Level Personnel and Administrative Doctrine
12-3-3	Corps Level Personnel and Administrative Doctrine
12-3-4	Echelons Above Corps Personnel and Administrative Doctrine
12-15	Wartime Casualty Reporting
12-16	Replacement Operations
12-50	US Army Bands
14-6	Comptroller/Finance Services in Theaters of Operations
14-7	Finance Operations
16-5	The Chaplain and Chaplain Assistant in Combat Operations
19-1	Military Police Support for the AirLand Battle
24-1	Combat Communications

29-19	Repair Parts Supply for a Theater of Operations
29-23	Direct Support Maintenance Operations (Nondivisional)
29-24	General Support Maintenance Operations
29-27	Calibration and Repair Service in the Theater of Operations
38-725	Direct Support System (Management and Procedures)
38-741	Direct Support Unit Storage Operations
41-10	Civil Affairs Operations
46-1	Public Affairs
54-8	Division Materiel Management Center
54-23	Materiel Management Center, Corps Support Command
54-40	Area Support Group
55-1	Army Transportation Services in a Theater of Operations
55-10	Movement Control in a Theater of Operations
55-15	Transportation Reference Data
55-30	Army Motor Transport Units and Operations
55-40	Army Combat Service Support Air Transport Operations
55-50	Army Water Transport Operations
63-1	Combat Service Support Operations—Separate Brigade
63-2	Combat Service Support Operations—Division
63-2-2	Combat Service Support Operations—Armored, Mechanized, and Motorized Divisions
63-3	Combat Service Support Operations—Corps
63-3J	Combat Service Support Operations—Corps
63-4	Combat Service Support Operations—Theater Army Area Command
63-20	Forward Support Battalion
63-21	Main Support Battalion, Armored, Mechanized, and Motorized Divisions
90-14	Rear Battle
100-2-1	Soviet Army Operations and Tactics
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100-2-3	The Soviet Army Troops Organization and Equipment
100-16	Support Operations: Echelons Above Corps
100-27	US Army/US Air Force Doctrine for Joint Airborne and Tactical Airlift Operations (AFM 2-50)
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2002	Warning Signs for the Marking of Contaminated or Dangerous Land Areas, Complete Equipments, Supplies, and Stores
2010	Military Load Classification Markings
2014	Operation Orders, Warning Orders, and Administrative/Logistics Orders
2019	Military Symbols for Land Based Systems
2021	Computation of Bridge, Raft, and Vehicle Classifications
2023	Marking of Military Cargo for International Movement by all International Means of Transport
2025	Basic Military Road Traffic Regulations
2034	Land Forces Procedures for Allied Supply Transactions
2041	Operation Orders, Tables, and Graphs for Road Movement
2047	Emergency Alarms of Hazard or Attack (NBC and Air Attack Only)
2060	Identification of Medical Materiel for Field Medical Installations
2070	Emergency War Burial Procedures
2079	Rear Area Security and Rear Area Damage Control

***Source of Procurement: STANAGs are available for DOD users from Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120. (DD Form 1425 may be used to requisition documents.)**

2085	NATO Combined Military Police
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2103	Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas
2104	Friendly Nuclear Strike Warning
2109	Postal Organization for the NATO Forces in Wartime
2115	Fuel Consumption Unit
2128	Medical and Dental Supply Procedures
2133	Vulnerability Assessment of Chemical and Biological Hazards
2135	Procedures for Emergency Logistic Assistance
2136	Minimum Standards of Water Potability
2143	Explosive Ordnance Reconnaissance/Explosive Ordnance Disposal
2150	NATO Standards of Proficiency for NBC Defense
2154	Regulations for Military Motor Vehicle Movement by Road
2155	Road Movement Bid and Credit
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2165	Forecast Movement/Transport Requirements and Inland Waterways
2174	Military Routes and Route/Road Networks
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- 3543** Air Transport Cargo/Passenger Handling Systems—Request for Information
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- 3756** Facilities and Equipment for Receipt and Delivery of Liquid Fuels
- 3854** Policies and Procedures Governing the Air Transportation of Dangerous Cargo



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By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
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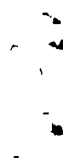
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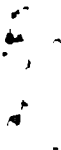
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